



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

## SECTOR 2—CHART INFORMATION

## SECTOR 2

### NORTH COAST OF AUSTRALIA—CAPE WESSEL TO CAPE LONDONDERRY

**Plan.**—This sector describes the N coast of Australia from Cape Wessel W to Cape Londonderry and includes Van Diemen Gulf, Melville Island, Bathurst Island, and Joseph Bonaparte Gulf. The outlying dangers, which are located N and W of this coast, are described in proper sequence after the main associated features.

#### General Remarks

**2.1 Winds—Weather.**—The Northwest Monsoon becomes well-established over the area described in the sector by early in January, bringing clouds, rain, and thunderstorms. Tropical depressions frequently occur during the period from December to April and vessels should be prepared for them.

The Southeast Monsoon is accompanied by fine weather, usually from May to September, but may reach force 5 to 7 over the open sea. A full description of the monsoon seasons is contained [paragraph 1.1](#).

Tropical storms, known as “Willy Willies,” in which the wind may reach hurricane velocity, affect the coastline during the summer season. The typical storm moves SW across the Arafura Sea and the Timor Sea and then recurves off the NW and W coasts of Australia, thereafter moving SE towards the Great Australian Bight, located along the S coast of Australia. However, almost as many of these storms continue to follow the coast within a distance of 200 miles, and later recurve over the SW portion of Australia. Gale to hurricane force winds, circulating in a clockwise direction, are liable to be encountered over an area varying in diameter between about 20 and 130 miles.

The average speed of these storms is about 12 knots. The maximum frequency of these storms usually one to two per year, occurs from January through March; the storm tracks are generally erratic. The approach of a “Willy Willy” is heralded by a falling barometer, freshening winds from the E, unusual sultriness, and persistent overcast skies and rain. After the storm passes, clouds quickly give way to clear skies.

**Tides—Currents.**—During the period from December to April, the Northwest Monsoon causes an E current along the N coast of Australia, usually attaining a rate of about 0.5 knot. An offshoot of this current sets S to SW, at a rate of about 0.5 knot, into Joseph Bonaparte Gulf and towards the entrance to Cambridge Gulf.

The offshore currents in the region are highly variable. For further information, see [paragraph 1.1](#).

**Visibility.**—Fog is very rare and in coastal waters is virtually unencountered. Haze, on the other hand, is a problem during the winter months, especially close to land, often reducing visibility to approximately 3 miles. During the summer, visibility is usually good, except during heavy rains or gales.

**Directions.**—Vessels proceeding E or W from or to Torres Strait should fix their position on the recommended track to pass approximately 10 miles N of Cape Wessel and then 25 miles NNW of **Cape Van Diemen** (11° 10'S., 130° 23'E.). From

the latter track line (062°/242°) leads to a position approximately 5 miles N of **Penquin Shoal** (13° 05'S., 125° 58'E.) and then on the charted course (063°/243°) to a position 5 miles S of **Browe Islet** (14° 06'S., 123° 33'E.). The least charted depth on this track is 18.3m, however, depths of 16 to 17.5m lie within 3 miles in some cases, and deeper draft vessels may wish to keep farther offshore.

**Caution.**—Offshore dangers are a definite threat to navigation, especially in regard to deep-draft vessels proceeding off the N and NW coasts of Australia. The recommended tracks should be closely adhered to, varying from them only when safe navigation permits.

#### Wessel Islands

**2.2** The Wessel Islands consist of a chain of islands extending about 76 miles NE from the mainland at **Napier Point** (11° 57'S., 135° 55'E.). The SE and E shores of these islands consist mostly of rocky cliffs which rise abruptly from the sea, but the opposite sides are mostly low and sandy.

The waters around these islands are only partially surveyed and caution is required when standing into their immediate vicinity.

When the Wessel Islands are approached on the normal E-W track line, which is charted approximately 10 miles N of Cape Wessel, they may not be clearly seen during the summer months, when the Northwest Monsoon causes the coastal features to be somewhat obscured by haze. Radar returns off the E coast of Marchinbar Island may be received before those from the cape itself and caution is recommended.

**Cape Wessel** (11° 00'S., 136° 45'E.), the NE extremity of Rimbija Island, the northernmost of the Wessel Islands group, is formed of a perpendicular cliff from 12 to 15m in height. It has been reported to give good radar returns up to 14 miles. A light is shown from a black, metal framework tower situated on the cape; a racon is situated at the light structure.

Discolored water and tide rips occur N of Cape Wessel and foul ground extends up to 2 miles NW of the cape.

**Marchinbar Island** (11° 14'S., 136° 38'E.), the largest of the Wessel Islands, is separated from Rimbija Island by a narrow foul channel encumbered by numerous below-water rocks. Emu Islet lies at the W end of this channel and is formed of rock; another rock lies about 0.5 mile NNE.

Sphinx Head, with conspicuous cliffs 67m high, lies on the E side of Marchinbar Island, about 10 miles SSW of Low Point, the island's NE extremity. The land rises S of the head to form two flat-topped hills with a maximum height of 79m; however, the entire E coast is cliffy and high. The island should not be closely approached to its SE shore, which is not fully surveyed and known to have a reef, which breaks, extending 1 mile S. Two rocks, awash, 5 miles farther SSW lie about 1 mile offshore.

A large bay containing two islets lies 3 miles SW of Sphinx Head. There is anchorage, in 20m, sheltered from all but strong

E winds, W of the N islet. The anchorage may be approached on a NW course, passing midway between the two islets, in a depth of 9m.

An unnamed bay, located between 1 and 2 miles NE of the S end of Marchinbar Island, is unsurveyed and unsuitable as an anchorage. The NE part of the bay is encumbered with rocky outcrops, and while there is apparently deeper water in the SW part of the bay, it is however exposed.

**Two Island Bay** (11° 35'S., 136° 24'E.), on the W side of Marchinbar Island, is located 5 miles SSW of Cape Wessel, between Mort Point and Auster Point. The bay contains North Island and South Island, with rocks 0.5 mile W of the W end of South Island.

**Trafalgar Bay** (11° 07'S., 136° 42'E.) is the next bay SW of Two Island Bay; it is entered between Auster Point and Thumb Point. The shores of the bay are reported to be foul. Sheltered anchorage can be found in 13m, about 0.5 mile WNW of the W of the two small islets in the center of the bay.

**Jensen Bay** (11° 08'S., 136° 42'E.), formed between Jensen Islet and Shark Point, about 3 miles SSW, has depths of 7 to 11m over most of its width, but is fringed by a dangerous reef with only 0.6m over it at the center of its head. The bay, which lies directly opposite Sphinx Head, would appear to provide reasonably good anchorage during the Southeast Monsoon, but is completely open to the NW.

**Gedge Point** (11° 12'S., 136° 38'E.), on the W shore near the middle of the island, has a conspicuous clump of casuarina trees on it, and landing is reported possible on a sandy beach at the S end of Temple Bay, close E of the point. Shark Point, about 2 miles NE of Gedge Point, is high, cliffy, and prominent and forms the W side of Temple Bay.

Red Point, about 5 miles SSW of Gedge Point, is formed of cliffs about 12m high. Near its S end, the island rises to a height of 79m.

**Caution.**—A 0.3m shoal has been reported (1990) to lie about 6 miles WNW of Southwest Point (11° 27'S., 136° 28'E.).

**2.3 Guluwuru Island** (11° 31'S., 136° 26'E.), separated from Marchinbar Island by Cumberland Strait, is high and cliffy, rising to a height of 99m in its S part. The waters around the island have not been closely examined, but a reef is known to border the NW shore to a distance of about 2 miles.

**Tides—Curr ents.**—The tidal currents along the W side of Marchinbar Island and Guluwuru Island attain up to 2 knots at springs, with the flood setting down on the shore. Tide rips are formed in Cumberland Strait, with rates of up to 12 knots at springs reported in 1987; because of this and several dangerous rocks, it should only be attempted by small craft with local knowledge.

**Raragala Island** (11° 35'S., 136° 17'E.), close SW of Guluwuru Island, has high cliffs on its SE side and rises to a height of 42m at its SW end. The island is very irregular in shape and has not been surveyed, but it is almost entirely fringed by a reef, with numerous rocks and islets along the NW shore. A passage, about 120m wide, runs between Raragala Island and Guluwuru Island. It has depths of about 9m, but the tidal current runs strongly through the passage, attaining rates of 12 knots at springs with strong eddies. The passage is usable near slack water.

Anchorage may be found, in a depth of 9.4m, mud and sand, 0.5 mile W of the N extremity of Raragala Island.

## Islands off Napier Peninsula

**2.4 Cunningham Islands** (11° 45'S., 136° 06'E.), consisting of Jirrgari Island, Sumaga Island, and Warnawi Island, 33m, 24m, and 18m high, respectively, lie in a line immediately SW of Raragala Island, with a reef between. They are all fringed by rocks and there is no safe passage among them. A spit, with a depth of 1.8m on its outer end, extends 5 miles SSE from the N extremity of Sumaga, the center island; other shoals may exist in the area. A light is shown from a structure at the W end of Warnawi Island. A 0.6m patch lies about 1.5 miles E of the light.

**Alger Island** (11° 53'S., 135° 58'E.), the innermost of the Wessel group, is 42m high and separated from Point Napier by a shoal passage nearly 3 miles wide. Reefs and rocks extend nearly 2 miles S of the island, with a sand cay on the outer extremity, and thus reduce the navigable width of this passage to less than 1 mile.

There is a deep channel charted between Alger Island and Warnawi Island, with a navigable width of approximately 2 miles. The soundings are from old surveys and caution is advised. A depth of 17.1m was reported (1983) to lie about 1.5 miles NE of Alger Island. A depth of 15.8m was reported 7.5 miles SSE of the N point of Alger Island in 1983.

**Stevens Island** (11° 33'S., 136° 06'E.) is the northeasternmost of a chain of islands and rocks extending 46 miles NE from the coast immediately W of Napier Peninsula. The island is 30m high, with rocks and foul ground extending up to 2 miles to the NE and SE.

A dangerous submerged rock of unknown depth lies about 6 miles NE of Stevens Island; another dangerous rock, the existence of which is doubtful, is charted about 4 miles N of the same island. Several rocks and reported shoal patches lie up to 13 miles NE of Stevens Island. A light is shown from the NE end of the island.

**Burgunngura Island** (11° 36'S., 136° 05'E.), 21m high and surrounded by foul ground, lies 2.5 miles SW of Stevens Island.

**Drysdale Island** (11° 41'S., 136° 00'E.), 43m high, lies 6 miles SSW of Stevens Island, with a drying reef which has several islets and rocks that obstruct the channel between Drysdale Island and Burgunngura Island. On this reef is Yargara Islet, 30m high, which lies close off Dale Point, the NE end of Drysdale Island.

A rock, awash, lies off the W side of the island, 5 miles W of Dale Point.

Graham Island, 29m high, lies close S of Drysdale Island, with a small craft channel between. Reefs fringe the N end of Graham Island and caution is required.

**Brown Strait** (11° 40'S., 136° 05'E.), with a navigable width of 3 miles and with depths of 16.5 to 38.4m in the fairway, separates the islands of the Wessel group from Stevens Island, Burgunngura Island, and Drysdale Island, and leads S to Cadell

Strait or the passage between Alger Island and Cunningham Island.

There is a detached shoal, with a depth of 1.8m, lies 1.5 miles SE of the S end of Stevens Island. A depth of 7.9m lies about 5.5 miles NE of Alger Island.

**Tides—Curr ents.**—In Brown Strait, the tidal currents set S on the flood and N on the ebb at rates of up to approximately 4 knots.

**Elcho Island** (11° 55'S., 135° 45'E.), the largest island of the above group, lies adjacent to Napier Peninsula, with Cadell Strait between. Point Bristow, the SW extremity of the island, lies nearly 29 miles from its NE end; several conspicuous tanks are situated about 2 miles to the N. A large mission station, which is the principal timber-cutting center for missions in the Northern Territory, is located between Point Bristow and the above tanks. There is a small hospital and air service is available with Darwin.

**Anchorage.**—Light draft vessels can obtain good anchorage during the Southeast Monsoon in the bay off the mission station. Approach can be made from the NE by steering for Abbott Islet (Sandy Islet), 3 miles off the W end of Elcho Island, until the NE point of Howard Islet can be made for bearing S. The best anchorage is abreast the mission station, in a depth of 5.5m, about 0.2 mile offshore.

**Caution.**—This area is not recommended during the Northwest Monsoon.

## Napier Peninsula to Cape Stewart

**2.5 Cadell Strait** (12° 00'S., 135° 45'E.) separates the NW side of Napier Peninsula from the SE side of Elcho Island and is less than 1 mile wide near its middle part. The NE entrance is obstructed by a bar with a depth of 0.6m, but general depths within run from 2 to 8m.

Small craft are reported able to navigate Cadell Strait in either direction by timing the passage to clear the bar at the NE entrance at high water. There is good anchorage for small vessels at the W entrance.

**Abbott Islet** (Sandy Islet) (12° 02'S., 135° 30'E.), 3.5 miles NW of Point Bristow, is a rocky islet lying on the S edge of a sand bank. It is a good mark, having a moderate covering of trees 4 to 8m high.

**Howard Island** (12° 08'S., 135° 24'E.), separated from the mainland by a narrow boat channel, lies SW of Elcho Island and forms with that island the SW entrance to Cadell Strait. The island has not been thoroughly examined, but has three hills on its E half, the northeasternmost of which forms a good mark in the approach to Cadell Strait or the mission station on Elcho Island.

**Castlereagh Bay** (12° 07'S., 135° 09'E.), entered between the NW extremity of Howard Island and Mjrunnga Island, about 17 miles WNW, has not been thoroughly examined, but has depths of 9.1 to 24m in its middle between the dangers which extend from its shores.

**Loosli Shoal** (12° 02'S., 135° 16'E.), with a least depth of 1.1m, lies 10 miles ESE of Mjrunnga Island and nearly in the middle of the entrance to Castlereagh Bay. Foul ground extends up to 6 miles from the W side of the bay and 2 miles from the E side. The shores are wooded, with low hills within.

The **Woolen River** (12° 14'S., 135° 10'E.) discharges into the head of Castlereagh Bay, about 4.5 miles WSW of Guy Point, the W extremity of Howard Islet. The channel has depths of 2.7 to 11m in the lower reaches, and river craft are reported to be able to navigate up to 14 miles upstream.

**Crocodile Islands** (11° 44'S., 135° 11'E.), consisting of three islands and several islets and rocks, extend nearly 20 miles NE from the coast between Castlereagh Bay and Cape Stewart, about 15 miles NW. As surveys of these islands are not complete, along with discolored water having been reported in several areas in the approach, and because of their low nature with surrounding coral reef, considerable caution is required in this vicinity.

**2.6 North Crocodile Reef** (11° 36'S., 135° 10'E.), which dries 0.6m, is the outermost of the known dangers and lies 17 miles NE of Cape Stewart (11° 56'S., 134° 44'E.). Caution Reef and NE Crocodile Islet lie 7 miles SW and 11 miles SE, respectively, of North Crocodile Reef, with breakers and discolored water between. The NE Crocodile Islet, with trees on it about 24m high, was reported to lie 2 miles farther N in 1984. Discolored water was reported in 1937 about 11 miles SW of NW Crocodile Islet. NW Crocodile Islet was reported to lie about 1.75 miles ENE in 1984.

**Mjrunnga Island** (11° 57'S., 135° 05'E.), the largest of the Crocodile Islands, lie about 18 miles E of Cape Stewart, with coral reef extending up to 8 miles to the N. The island is low and covered with vegetation and cannot be easily identified from a distance. In 1984, the island was reported to lie 1 mile N of its charted position.

Yabomma Island, about 7 miles SW of Mjrunnga Island, is low and wooded. The N shore of the island is ridged with sand dunes up to 18m high, and Hellier Point, the W extremity, is fringed with reef to a distance of 0.3 mile. Numerous coral reefs lie N and W of Hellier Point, with a narrow channel leading between; the channel between Yabomma Island and Mjrunnga Island is foul, with dangerous rocks, having a depth of 1.8m, approximately in the middle.

Millingimbi Island lies about 2 miles SW of Yabomma Island, with Boojairagi Islet between. Millingimbi Island, low and wooded, is separated from the mainland by a narrow channel available only to boats. A mission station, marked by two aluminum oil tanks and a wooded pier, is situated on the SE end of the island and is in communication with Darwin by radio and air.

Millingimbi Inlet, the narrow passage between Yabomma Island and Millingimbi Island, is entered 1 mile N of Yabomma Island and E of the reefs off Hellier Point. The channel carries a least depth of 2.1m and is available to small coasters with local knowledge. Mean neap tides rise about 3m, but the channel is intricate with sharp turns between the reefs and caution is required.

## Cape Stewart to Cape Cockburn

**2.7 Cape Stewart** (11° 56'S., 134° 45'E.) separates Castlereagh Bay and the Crocodile Islands from Boucat Bay to the W. The point is low, wooded, and fringed by reefs. False Point, about 4 miles W, is low, sandy, and bordered by a reef

which extends in a ledge 3 miles NNW to Sand Islet, small, low, and surrounded by coral.

**Boucaut Bay** (12° 00'S., 134° 29'E.), entered between False Point and Skirmish Point, about 24 miles W, has a low sandy shore with patches of mangroves scattered on the W part. There are general depths in the bay of 5.5 to 11m, but a 3m patch and a 4.6m shoal lie nearly in the middle of the bay about 13 miles W of False Point. Submerged ledges extend up to 4 miles NNW of Skirmish Point and the sea breaks on the outer portion.

**Liverpool River** (12° 00'S., 134° 12'E.), the estuary of which is entered between Skirmish Point and Point Hawkesbury, 23m high and thickly wooded, about 11 miles NW, provides good anchorage for small vessels seeking shelter from the Southeast Monsoon. Although there is a government settlement within the entrance, the estuary and river channel have not been surveyed for a considerable length of time; the channels are not marked or buoyed, and since the tidal currents set across the entrance at rates up to 2 knots, caution is required on entering. Local knowledge is recommended.

Haul Round Islet, the outer islet of the Liverpool Estuary and marked by a light, is a small sand cay about 1.2m high, which is located on the S end of a coral reef about 5 miles E of Point Hawkesbury.

A shoal, with a least depth of 3m, lies about 2 miles SSW of Haul Round Islet, and a shoal area about 2 miles long in a N-S direction, with a least depth of 2.7m, lies midway between the islet and Point Hawkesbury.

Entrance Island, about 4 miles S of Haul Round Islet, is conical in shape and 20m high. It is connected to North East Point, about 2.5 miles SE, by shoal water.

**Caution.**—Only small vessels should proceed beyond Entrance Island.

**2.8 West Point** (11° 57'S., 134° 11'E.), low, sandy, and fringed by reefs, lies about 1.75 miles W of Entrance Island, with the entrance channel between. South West Point, 4.5 miles SSE of West Point, narrows the river entrance and rises to a wooded hummock, 54m high and 0.75 mile within.

**Mangrove Bluff** (12° 05'S., 134° 12'E.), fringed with mangrove trees, lies about 2.75 miles S of South West Point and rises about 1 mile within to moderately high land covered with grass and woods. A conspicuous tower stands 2.5 miles ENE of the bluff.

The main channel lies between Haul Round Island and the extensive shoal area 1.5 miles W, and then between Entrance Island and the reef off West Point. It then leads about 0.85 mile E of South West Point, to which a least charted depth of 5.5m can be carried. It appears the channel can best be run on a course of about 173°, passing 0.5 mile off the W extremity of Entrance Island.

Above Mangrove Bluff, the river is narrowed by Bat Island and becomes shoal and tortuous, with the channel generally following the E bank. The mangroves are so thick that landing is not practical and fallen trees make navigation difficult.

**Anchorage.**—Well-protected anchorage can be taken by small vessels off the S side of Entrance Island, in depths of 5.8 to 9.1m, about 0.2 mile offshore. Depths shoal S of this anchorage and caution is required.

Moderate size vessels can take anchorage in the channel W of Entrance Island where there are depths of 13 to 20m, mud; the tidal currents reach 2 knots hereabouts and a good watch is required.

Small vessels can anchor about 0.5 mile NE of South West Point, in a depth of 4.6m, or about 1.25 miles SSE of the point, in a depth of 5.5m, mud. The latter anchorage lies about 0.75 mile NW of the government settlement which is in radio and air contact with Darwin.

**Caution.**—Dangerous wrecks lie about 17 and 41 miles NE of Haul Round Islet.

**2.9 Rolling Bay** (11° 54'S., 134° 06'E.), entered between Hawkesbury Point and a rounded point 3.25 miles WNW, is shoal and foul, with a ledge of rocks and submerged dangers extending out for a distance of 3 miles through the center of the bay. The outer part of this ledge breaks and vessels without local knowledge are recommended not to attempt to enter.

**Junction Bay** (11° 50'S., 133° 57'E.), entered between the point W of Rolling Bay and Braithwaite Point, about 10 miles farther NW, has general depths of less than 5.5m except for its center part. The SE side of the bay is moderately elevated and wooded, with some red cliffs, and a stretch of sandy beach which is fringed by rocks to the E and W. There is a projection, in the middle of the NW shore, from which the land close behind rises to a height of 35m. Immediately SW of this projection the land is low and swampy.

**Braithwaite Point** (11° 46'S., 133° 56'E.), low and wooded, is heavily fringed by reef. Hall Point, 2.5 miles NW, has a rocky spit extending about 1.5 miles N from it. Rocky ledges fringe the shore across the head of a small bay between Hall Point and Cuthbert Point, about 5 miles W. The land between these points is low, sandy, and continues to SW of the latter point.

**Caution.**—A depth of 9.1m was reported in 1941 about 57 miles NE of Braithwaite Point; another 9.1m patch lies 6.5 miles SSW of the first patch. The bottom here is irregular and large vessels are recommended to give the area a wide berth.

A line of shoals, with rocks, breakers, and coral heads, extends about 14 miles NE of Braithwaite Point; the outer dangers have not been examined and should be given a wide berth.

**Paxie Shoal** (11° 26'S., 134° 09'E.), with a least depth of 9.4m, coral, lies about 23 miles NNE of Braithwaite Point.

A large shoal area, which breaks near its outer limits, extends 6.5 miles N of Cuthbert Point with several dangers on it having depths of less than 1.8m. The limits of this area extend to Hall Point, about 5 miles E, with depths on the inner part of less than 4m. Shoaling has also been reported (1991) to extend up to 8 miles N of Hall Point. Other dangers NE and E of Hall Point, and up to 25 miles N through NW of Cuthbert Point, may best be seen on the chart.

**2.10 Guion Point** (11° 46'S., 133° 40'E.), about 11 miles WSW of Cuthbert Point, is fringed by reefs and has a few rocks N of it. The point, which is wooded, extends W from the coast for about 1 mile and forms the entrance of a sandy bay located between itself and a point about 4 miles SW. The bay has general depths of 3.7 to 5.5m, but a 3.7m shoal lies in the

middle of its entrance and a rocky ledge extends about 2 miles N of the W entrance point.

**Turner Point** (11° 45'S., 133° 32'E.), about 8 miles W of Guion Point and forming the NW entrance point of King River, is fringed with rocks and has depths of less than 5.5m extending up to 1 mile to its N.

King River has depths of 5.8 to 7.3m at its mouth, with a depth of 5.5m for about 3 miles within. It trends S and SW with heavily wooded shores, but is narrow, difficult, and only available to boats over most of its length.

The Wellington Range, which attains an elevation of 174m, commences about 8 miles SW of Turner Point and extends about 20 miles W, giving the coast a distinctive rocky appearance in contrast with the low land E of King River.

**Tor** (11° 56'S., 133° 08'E.), an isolated pyramidal rock, 221m high, is located about 19 miles SW of Ross Point and forms a good mark in clear weather.

**Barclay Point** (11° 44'S., 133° 24'E.), 7.5 miles W of Turner Point, is the extremity of a low peninsula which extends from the coast to form a small bay on either side. The E bay is encumbered with rocks and has not been fully examined. Anuru Bay, on the W side, had depths of from 1.8 to 3m over its greater part, although there is a deeper area on the W side of the entrance. The SW part of the bay dries for a distance of about 0.5 mile offshore and the head of the bay is formed of cliffs.

**Ross Point** (11° 41'S., 133° 21'E.), about 12 miles WNW of Turner Point, is the NE extremity of a range of hills, about 30m high, that forms the NW entrance point of Anuru Bay. Submerged ledges extend about 0.25 mile from the N and S sides of the point.

**White Point** (11° 42'S., 133° 18'E.) lies about 3 miles W of Ross Point, and between it and Brogden Point, 16.5 miles NW, there is a bay which has not been closely examined. The shore from about 2 miles SW of White Point is low and sandy with White Rocks, above-water and submerged, extending about 1 mile offshore, about 4 miles SW of the point. A rock, awash, lies about 0.5 mile NW of White Rocks and a little over 1.5 miles off the coast.

**Brogden Point** (11° 31'S., 133° 05'E.), 61m high, can easily be identified because of its higher character in relation with the rest of the shore and the cliffs on its S side. The coast between Brogden Point and DeCourcy Head, a cliffy projection, 36m high, is not completely examined, but is rocky and reef-fringed.

**Cape Cockburn** (11° 20'S., 132° 52'E.), 3 miles W of DeCourcy Head, is low and rocky, with drying ledges extending nearly 0.5 mile offshore. A rock, which dries 1.8m, lies 1.25 miles NNE of Cape Cockburn. The cape is wooded to within a short distance of the shore, but is not as conspicuous as De Courcy Head.

## Goulburn Islands

**2.11 North Goulburn Island** (11° 30'S., 133° 26'E.), located about 9 miles NNE of Ross Point, is about 7 miles long in an E-W direction and generally low in character, but with a ridge along its N and W shores. It is fringed by rocks in places, mostly along the N shore. A shoal, with a depth of 4.3m, was

reported in 1980, 2.5 miles E of the NE extremity of the island. A number of dangerous shoals exist within 9 miles to the NE of the NE extremity and may be seen on the chart.

Mullet Bay, formed between Cone Point and Sand Point at the W end of North Goulburn Island, affords good anchorage sheltered from the Southeast Monsoon, in depths of 11 to 13m, mud, about 1 mile offshore. A rock and a shoal, both with a depth of 1.8m, lie in the S part of the bay and caution is advised.

**South Goulburn Island** (11° 37'S., 133° 25'E.), about 2.5 miles S of North Goulburn Island, is generally low and sandy, with a mission station on its S end. The passage between the two islands has depths of 9.1 to 12.8m in its fairway, but a 7.3m patch lies 3 miles SW of Sand Point. This passage has not been completely surveyed, and it has been reported that the coastline and positions of the two islands are not accurately charted, making it difficult to fix a vessel's position when passing through.

South West Bay, on the W side of South Goulburn Island, has a sandy beach backed by cliffs, about 12m high, that are stratified by red and white clay. Bottle Rocks, which are above water, are separated from the N entrance point of the bay by a narrow channel, with a depth of 3.7m; a 5.5m patch lies 1.25 miles WSW of these rocks.

Sims Islet, which lies in the approach to South West Bay, about 3 miles WNW of the S extremity of South Goulburn Island, is formed of large coarse sandstone with rounded masses over the N part of the island, on which is Sansom Head, 18m high. A 6.4m patch lies about 1 mile SSE of the island.

**Aspect.**—A mission station is situated on the E side of the S end of South Goulburn Island and is in radio and air communication with Darwin. The station can be reached by a trail from South West Bay.

**Anchorage.**—Good anchorage can be obtained in South West Bay in depths of from 9 to 11m, about 1 mile offshore. Small vessels can anchor closer to shore in a depth of 5.5m, about 0.25 mile off the beach.

Small craft can anchor in the bay E of the mission station, but local knowledge is required to proceed through the reef which fringes the approaches off the E side of South Goulburn Island.

**Macquarie Strait** (11° 42'S., 133° 25'E.), separating South Goulburn Island from the mainland, is narrow and incompletely surveyed in the approaches. It has a reported depth of 3.7m in the middle of the fairway and a depth of 7m was reported in the E approach in 1968. Tidal currents run at a rate of about 2 knots, setting SSE on the flood. Only small vessels with local knowledge should attempt this passage.

## Islands and Dangers North of Cape Cockburn

**2.12 New Year Island** (10° 54'S., 133° 02'E.) lies at the NE extremity of the group of islands and islets that extends up to 27 miles N of Cape Cockburn. It is wooded and fringed by reefs, with deep water within 0.5 mile offshore except at its SW end.

New Year Island Light is shown from a round, metal framework tower situated about 0.5 mile W of the E extremity of the islet.

**Caution.**—Vessels running the offshore track are recommended to pass not less than 6 miles N of New Year Island because of the extent of Bramble Rocks, about 16 miles W.

**Hogmanay Shoal** (10° 59'S., 133° 09'E.), with a least depth of 8.2m, lies 8 miles SE of New Year Island and is about 3 miles long in a N-S direction. Depths in excess of 18.3m lie close N, E, and S of this shoal, with the 20m curve about 1 mile off in all directions.

Oxley Islets, two in number, lie on a bank about 12 miles WSW of New Year Island and about 20 miles NNW of Cape Cockburn. The N islet, which is low and wooded, is connected to the S islet by a spit which uncovers at low water. A submerged rock lies 1.25 miles E of the S end of the N islet, while a 10.9m shoal lies 1.25 miles W of the S end of the S islet. A depth of 11.9m lies 3.5 miles S of the S islet.

Between Oxley Islets and New Year Island, surveys are not complete, but irregular depths of 7.6 to 16.5m, coral, with overfalls in places, have been reported in the area from 3 to 10 miles E of the S Oxley Islet.

**Bramble Rocks** (10° 53'S., 132° 46'E.), with a least charted depth of 3.6m, lie off the N end of the bank on which the Oxley Islets lie. The northernmost rock is located about 6.5 miles NNW of the N islet and has a charted depth of 4.9m. These rocks lie N of the parallel of New Year Island and are dangerous because of their proximity to the shipping lanes.

**McCluer Island** (11° 04'S., 133° 00'E.), 42m high, lies 11 miles SE of Oxley Islets and is the highest of the islands N of Cape Cockburn. Its N side is heavily fringed by reefs, with a wooded islet located on a spur extending about 1 mile off the NW extremity. The E side is also fringed by a reef extending about 1 mile offshore, but several islets, formed of dead coral, lie close offshore. The SW side of the island is sandy, with depths of 3 to 4m extending up to 1 mile off the beach.

**2.13 Lawson Islets** (11° 04'S., 132° 52'E.), two in number, lie about 6 miles W of McCluer Islet, with the N islet on a reef which extends about 0.5 mile from the N and W sides and 1.5 miles from the E side. The S islet, which is smaller, low, and wooded, is located about 2 miles to the SE, but the waters around, and between it and the N islet, have not been completely surveyed. A shoal, with a depth of 10.5m, was reported in 1980 to be 1.5 miles SW of the SW extremity of Lawson Islets.

**Grant Island** (11° 09'S., 132° 55'E.), 32m high, lies about 10 miles N of Cape Cockburn and is the southernmost island in the group. The island is nearly surrounded by a reef and rises to a peak at its NW end, but is low and wooded at the E and SE shores. Depths of less than 5.5m lie up to 1.5 miles S and SE of Grant Islet, with foul ground in this vicinity. In 1988, a shoal with a least depth of 10m was reported 5 miles W of the S end of Grant Island.

Depths between Lawson Islets and Grant Island are irregular and not fully surveyed; however, soundings of 7 to 8.2m have been taken.

The passage between Cape Cockburn and Grant Island and between Oxley Islets and Croker Island is wide, deep, and clear with a navigable width of about 6 miles between the 11m

curves. Depths of 12.8m and 14.6m were reported on the E side of the passage in 1968.

**Money Shoal** (10° 21'S., 132° 44'E.), with a least depth of 3.6m, lies approximately 39 miles NNW of New Year Island and N of the recommended track laid off the N coast of Australia. This shoal is generally formed of coral heads and extends in a NW- SE direction over a distance of about 4 miles.

During the Southeast Trade Wind season, Money Shoal has been observed to break. On the rising tide in the general neighborhood the current sets WNW at rates up to 1 knot and may combine with the coastal currents to set a vessel, which may already be too far N of the recommended track, in the direction of this danger.

## Cape Cockburn to High Point

**2.14 Mountnorris Bay** (11° 22'S., 132° 43'E.), entered between Cape Cockburn and Darch Islet, about 14 miles NW, affords shelter to small vessels during both monsoons, however, large vessels are recommended not to use it as surveys are reported to be incomplete. Templer Islet, 17m high, lies in the middle of the entrance to the bay, about 8.5 miles WNW of Cape Cockburn, and is surrounded by reef. Depths of 4.6m and 5.9m were reported in 1984, 3 miles NNE and 3.5 miles NE, respectively, of Templer Islet. Cowlard Islet, small and located on a reef, lies nearly midway between Templer Islet and the cape.

**Malay Bay** (11° 23'S., 132° 53'E.), on the E side of Mountnorris Bay, is entered between Cape Cockburn and Annesley Point, about 4 miles SSW, and affords good anchorage for small vessels in depths of 5.5 to 7.3m for about 2 miles within the entrance. A reef extends nearly 1 mile N of Annesley Point and caution is required.

**Valentia Islet** (11° 23'S., 132° 48'E.), 49m high and heavily wooded, lies 2.5 miles W of Annesley Point, with no safe passage between. Reefs and rocks lie along the N shore of the islet and extend about 0.75 mile from the SE extremity.

**Copeland Island** (11° 29'S., 132° 44'E.), 38m high, near the head of Mountnorris Bay, lies 8.5 miles SW of Annesley Point and has a distinctive perpendicular yellow cliff on its N side. The island is surrounded by reefs, and there is no safe passage between it and the mainland, except for boats.

The head of Mountnorris Bay consists mostly of sandy beaches separated by rocky points, but rocks and shoal water extend up to 4 miles offshore on the W side of the bay and only small vessels with local knowledge should proceed in this far. The land backing the S shore rises on both sides to heights of 89m, and Bay Hill, with a height of 74m, rises directly behind the head of the bay and is conspicuous.

**2.15 Croker Island** (11° 10'S., 132° 33'E.), about 23 miles long from Cape Croker to its S extremity, lies separated from the mainland by Bowen Strait, about 16 miles NW of Cape Cockburn. The E shore of the island is generally rocky and backed by hills reaching elevations of up to 41m, but the W side is mostly low and in places sandy. The S end attains the greatest elevation and is heavily wooded.

**Cape Croker** (10° 58'S., 132° 36'E.), the N extremity of Croker Island, is a wooded point backed by a conspicuous hummock, 24m high, about 0.75 mile inland. Drying reefs

extend nearly 1 mile N of the cape and a 4.3m patch lies about 1 mile farther seaward. The cape is marked by a light.

**Britomart Shoal** (10° 54'S., 132° 33'E.), with a depth of 5.5m, lies 5.5 miles NNW of Cape Croker and is the seaward extremity of a spit extending from the cape.

**Caution.**—During the period from October to December, a strong current sets toward the land in the vicinity of Cape Croker and vessels should make allowance for it.

**Mission Bay** (11° 10'S., 132° 37'E.), located approximately in the middle of the E shore of Croker Island, is entered between a point backed by a 28m high red sandhill on the N, and a rocky point about 2.5 miles S. A rock, which dries 0.9m, lies 0.75 mile NNE of the latter point and breakers were reported in 1961 about 1 mile farther N. There is a mission station at the head of the bay.

Anchorage can be obtained in Mission Bay in depths of from 4.9 to 12.8m, sand, during the Northwest Monsoon, however, caution is recommended during the Southeast Trade Wind season when the sea is driven directly across the entrance.

Darch Islet lies about 14 miles SSE of Cape Croker and 2.5 miles SE of the entrance to Mission Bay. It is thickly wooded and surrounded by reefs which extend up to 1 mile seaward of its E extremity, One Tree Point. In 1988, a shoal with a least depth of 7.9m was reported 2 miles NNE of One Tree Point.

There is a narrow channel, with depths of 8.5 to 12.8m, between Darch Islet and Croker Island, but it has not been closely examined.

**2.16 Point David** (11° 22'S., 132° 35'E.), the S extremity of Croker Island, is low, narrow, and stony, with a spit having depths of less than 5.5m extending 3.5 miles ESE from it. The SW coast of the island, between David Point and Adjamarruga Point, about 13.5 miles NW, also forms the E side of Bowen Strait and is stony and mostly covered with brush.

**Palm Bay** (11° 08'N., 132° 29'E.), entered between Adjamarruga Point and a point about 6 miles NNE, affords good anchorage during the Southeast Trade Wind season, in depths of 7.3 to 9m. The NE part of the bay and the area about 2 miles NW of Adjamarruga Point are fouled with rocks and a reef; caution is required. There is a sandy beach in the SE part of the bay which apparently provides good landing.

**Sommerville Bay** (11° 01'S., 132° 30'E.), on the N side of Croker Island, is entered between the W side of Cape Croker and a low wooded point about 6.5 miles SW, off which extends a reef, with Peacock Islet on its outer end, about 1 mile NW. The bay has general depths of 7.3m to 14m, but its shores are reef-fringed and landing appears difficult.

**Bowen Strait** (11° 15'S., 132° 31'E.), between the SW side of Croker Island and the mainland, is encumbered with shoals and has only been partially examined. It is reported to be suitable for small vessels, with drafts up to 4.6m, which possess local knowledge to follow the channel E of the shoals in the middle of the strait; however, the E entrance, which is narrow with off-lying shoals, appears to carry a least depth of 5.8m and is difficult.

The coast forming the W side of Bowen Strait has been only partially examined and stretches from Mountnorris Bay about 15 miles NW to High Point.

## High Point to Port Essington

**2.17 Raffles Bay** (11° 10'S., 132° 23'E.), entered between **High Point** (11° 13'S., 132° 26'E.) and D'Urville Point, about 3 miles W, affords safe anchorage for small vessels with local knowledge, sheltered from all but N winds, in depths of 5.5 to 7.3m. Both entrance points, as well as the shores on either side of the inner bay, are fronted by ledges and rocks which reduce the navigable width of the entrance channel to about 1 mile. The head of the bay is low and covered with mangroves, but there is a cliff on the E side about 2 miles SW of High Point.

Campbell Reef, rocky with a depth of less than 1.8m, lies about 3.5 miles NW of High Point and in the approach to Raffles Bay.

**Danger Point** (11° 07'S., 132° 21'E.), a low, narrow point about 8 miles NW of High Point, is fringed with reef and submerged rocks to a distance of nearly 1 mile. A depth of 7.7m has been reported about 3.5 miles NNE of Danger Point; less depths may exist in the vicinity.

**Caution.**—Jones Shoal, with a least depth of 7.3m, lies about 11 miles NNW of Danger Point and encompasses an area of about 2 square miles. In 1977, an obstruction, with a depth of 17.7m, was reported to lie 5 miles NNE of Jones Shoal.

**2.18 Port Bremer** (11° 08'S., 132° 15'E.), situated between Danger Point and Smith Point, about 11.5 miles W, is entered between Sandy Islet No. 1 and Sandy Islet No. 2. Both these islets are low and reef-fringed; the latter is located about 2.5 miles WNW of Danger Point while the former is located about 3 miles E of Smith Point. A monument, 8m high, stands on Smith Point. A shoal, with a depth of 9.1m, was reported 3 miles NW of this point.

The shores of the outer part of Port Bremer are fringed with reefs, and dangerous rocks and sand banks lie up to 3 miles off the coast in places; an isolated 2.3m patch lies about 2.5 miles SW of Sandy Islet No. 2. Sandy Islet No. 1 is connected to the shore SW by reef.

**Edwards Point** (11° 11'S., 132° 16'E.), about 6 miles SW of Danger Point, and Kuper Point, 2 miles W, form the entrance to the inner part of Port Bremer, but the channel is restricted by the outer and inner dangers to a width of less than 0.5 mile, and local knowledge is necessary to enter. There are charted depths of 11 to 12.8m in the channel to Stewart Point, about 2 miles SW of Edwards Point, but the inner part of the port is not adequately surveyed and the waters are used for the culture of pearls therefore caution is required.

**Anchorage.**—Good anchorage can be obtained in Port Bremer by vessels with local knowledge, in depths of 7.3 to 11m, to the E of Stewart Point, where there is shelter from all but N winds.

## Port Essington

**2.19 Port Essington** is an inlet on the N coast of Australia which was originally used as a naval base in the nineteenth century, but let go as a consequence of the climate and the unproductive character of the surrounding country. It is entered between **Smith Point** (11° 07'S., 132° 08'E.) and Vashon Head, about 8 miles W, but the land on both sides is very low and the

approach is somewhat difficult because of the reefs extending from, and off-lying the entrance points.

The inlet, which is about 18 miles long, is divided into an outer and an inner harbor by a spit of land about two-thirds of the way S from the entrance. Both harbors provide good anchorage, the outer harbor for larger vessels and the inner harbor for small vessels with local knowledge.

The small settlement of Victoria, situated on the W shore of the inner harbor, is the only remnant of the original base and is apparently only occupied at certain times of the year.

**Orontes Reef** (11° 04'S., 132° 05'E.), dangerous and difficult to sight, lies on the approach to Port Essington, about 5 miles NW of Smith Point. On its S extremity are several rocky heads with depths of 0.6 to 0.9m, and on the N extremity is a rock with about 4.6m of water over it. The sea seldom breaks on this reef, and the reef itself cannot be seen even when close to, as the discoloration of the water is not confined to its immediate vicinity. The shoal is marked by lighted buoys.

**2.20 Outer Harbor.—Smith Point** (11° 07'S., 132° 08'E.), on the E side of the entrance, is low and rocky with reef extending nearly 1 mile NW from its N extremity. Some of the rocks near the outer end of this reef are above water, and a depth of 7.4m was reported in 1965 to lie outside its limits about 2 miles NNW of the point. Another shoal, with a depth of 8.3m, was reported (1979) to lie 3 miles NW of Smith Point. A monument, 8m high, stands on Smith Point.

**Vashon Head** (11° 07'S., 132° 00'E.), the W entrance point to Port Essington, is low, wooded, and swampy, rising to a 48m hill about 2 miles within. Reefs and foul ground extend nearly 3 miles NNE of the point, with a 0.1m patch on its E edge, about 1.75 miles NE of the head.

Black Point, 2 miles S of Smith Point, is cliffy and covered with trees on its S side. A conspicuous building stands on the shore close N of the point. Reef Point, about 2.25 miles SSE of Black Point, has reef extending nearly 0.5 mile SW from it.

Walford Point, on the W side of Port Essington, lies 5.5 miles SE of Vashon Head and is the NE extremity of a low tongue of land which forms the SE side of Coral Bay. A detached shoal, with an approximate position of 11° 11'S, 132° 05'E, and with a depth of 1.8m, lies 1 mile E of Walford Point.

Turtle Point, moderately high, is located about 3.5 miles SE of Walford Point, with Low Point and Kennedy Bay between. Turtle Point can usually be identified before either Smith Point or Vashon Head, but may be difficult to identify.

Berkeley Bay, on the E side of Port Essington, is entered between Reef Point and Table Head, a low, rocky projection 3.5 miles SSE. A rock, which dries, lies about 0.5 mile W of the latter head, with reefs between; a 3.7m patch lies 0.75 mile N of the same point. The shore of Berkeley Bay is formed of several small cliffs from 6 to 9m high with small marshy coves between; a cliff 1.25 miles NE of Table Head is red in color.

**Record Point** (11° 19'S., 132° 11'E.), a long narrow tongue of land, is partially wooded and separates the outer and inner harbors of Port Essington. It is located about 5 miles S of Table Head, with Observation Cliff between.

**Saddle Hill** (11° 18'S., 132° 15'E.), 76m high, rises about 3.5 miles E of Record Point, but is sometimes difficult to identify as the surrounding country is thickly wooded.

**Knocker Bay** (11° 18'S., 132° 07'E.), entered between Curlew Point and Oyster Point, is located on the W side of Port Essington about 5 miles SW of Table Head. The shores of this bay are bordered by shoal water and patches of reef, but small craft can enter without difficulty. A 3.7m patch lies a little over 1 mile NNE of Oyster Point, just E of the entrance to Knocker Bay. The waters within the bay are used for the culture of pearls.

**Anchorage.**—During the Southeast Monsoon, good anchorage can be taken between Smith Point and Black Point, about 1 mile NW of the latter, in depths of 9.1 to 11m.

Coral Bay affords anchorage to small vessels, in depths of 5.5 to 7m, sheltered from E winds by Walford Point.

Small vessels and small craft can also seek anchorage in the S parts of Berkeley Bay and Knocker Bay.

**2.21 Inner Harbor.**—The inner harbor of Port Essington is spacious and nearly landlocked, so as to provide good shelter in all winds. It can be entered by moderate sized vessels, but local knowledge is recommended as the shoals NW of Record Point extend into the channel.

**Middle Head** (11° 21'S., 132° 12'E.), 2 miles SSE of Record Point, is a wide cliffy projection which rises to a height of 61m and divides the inner harbor into two bays, namely Barrow Bay to the E and West Bay to the W. A spit, with a rock having a depth of less than 1.8m on its outer end, extends a little over 1 mile NW from Middle Head and another dangerous rock lies about 1 mile farther in the same direction.

**Barrow Bay** (11° 20'S., 132° 12'E.), with general depths of about 11m, is entered between Record Point and Middle Head and has generally low shores fronted by mangroves, but with the country inland being higher and thickly wooded; the shores of the bay are fringed with mud flats which extend up to 0.5 mile seaward.

**West Bay** (11° 23'S., 132° 10'E.), a shoal bay with depths of 3 to 5.5m, is entered between Middle Head and Minto Head, a whitish cliff about 14m high, 2 miles to the W. The head of the bay is divided into two coves by Mangrove Point, which has a drying spit extending 1 mile NNW from it and mud flats within. Mangrove swamps fringe the shores hereabouts and the land is generally low, except at Middle Head.

**Tides—Curr ents.**—The flood current sets SE into the entrance of Port Essington, S past Turtle Point, and then SE again into the inner harbor. There is considerable strength to the flow in the narrow parts of the harbor and into the bays. The ebb current generally follows the fairways and sets strongly past Black Point.

**Anchorage.**—Ocean-going vessels can anchor in the inner harbor of Port Essington just within the entrance to Barrow Bay, in a depth of 11m, about 0.75 mile SSE of Record Point. Small vessels can anchor 0.5 mile E of Minto Head, off the abandoned settlement of Victoria, in a depth of 5.5m.

**Caution.**—When steering for the entrance of the inner harbor, care must be taken to avoid the 3.7m patch about 1 mile NNE of Oyster Point and the shoal water extending about 1 mile NNW of Record Point. When past the latter, vessels should pass about 0.25 mile off Record Point to clear the dangers on the W side of the entrance.

## Port Essington to Cape Don

**2.22 Vashon Head** (11° 07'S., 132° 00'E.), the W entrance point to Port Essington, has previously been described in [paragraph 2.20](#).

**Wanaraij Point** (Wanary Point) (11° 08'S., 131° 58'E.), 2 miles W of Vashon Head, is low, sandy, and forms with Arau Point, about 6 miles WSW, the entrance to Trepang Bay. Arau Point, also low and sandy, is covered with mangroves and surrounded by reef which extends up to 1.5 miles offshore. Midjari Point, reef-fringed and wooded, lies about 2 miles SSW of Wanaraij Point, with a shoal bay between. A dangerous wreck is located approximately 2.5 miles NE of Wanaraij Point.

**Trepang Bay** (11° 11'S., 131° 56'E.) has depths of 9 to 11m across its entrance and shoals gradually towards its head, which consists of mud flats and mangroves. It affords good anchorage for vessels with local knowledge, during the Southeast Monsoon, nearly anywhere outside the fringing reefs. A good berth appears to be in a depth of about 10m, with Arau Point bearing approximately 270°; vessels entering should take care to avoid the 9.4m patch about 3.5 miles NW of Wanaraij Point and the reefs extending from the entrance points of the bay.

Allaru Islet, small and sandy, lies about 1.5 miles NW of Araru Point, with a boat channel between its S shore and the reef extending from the point.

**Blue Mud Bay** (11° 12'S., 131° 51'E.), located between Araru Point and Lingi Point, about 4 miles WSW, is almost entirely encumbered with reefs, except for two arms leading to the SE and SW extremities. The shores of the bay are low and sandy on the E side, but overgrown and wooded along the W shore to Lingi Point. Blue Mud Bay offers secure anchorage to small craft, but caution is necessary on entering as the tidal currents sweep around the outer reefs with a rate of up to 2.5 knots.

Popham Bay is entered between **Lingi Point** (11° 16'S., 131° 49'E.) and **Ardigbiyi Point**, about 4 miles SSW. The shores of the bay are fringed with reefs, except at its head, which shoals gradually to a low, mud-filled mangrove swamp. A 34m hill rises on the E side of the inner part of the bay and provides a good observation spot. Bird Islet, 0.75 mile NNE of Ardigbiyi Point, is low, flat, and covered with grass, but it appears to be surrounded by a reef; a 7.3m patch lies about 1.25 miles WSW of the bay.

Alcaro Bay and Christies Bay, both fringed by a reef, lie between Ardigbiyi Point and Cape Don, about 2.75 mile SW. Alcaro Bay is open to the NW and is of little importance; Christies Bay, through which a narrow boat channel marked by stakes has been cut, is entered close NE of Cape Don and leads to a pier, in ruins, at its head. The pier dries at LW, but at HW there is a depth of about 0.9m at the pier.

**Cape Don** (11° 19'S., 131° 46'E.), the E entrance point of Dundas Strait, and the W extremity of Coburg Peninsula, is a low, wooded point fringed by reefs and rising to a rounded hill, 51m high, about 1 mile within. Shoal water, with depths of 4.9m to 10m, extends about 1.5 miles NW of the cape, and foul ground consisting of above-water and submerged rocks, lies about 1 mile to the N; Cape Don should be given a wide berth as the tidal currents are strong.

Cape Don Light is shown from a gray concrete tower, 36m high, close within the cape; the tower shows about 15m above the trees.

## Van Diemen Gulf

**2.23 Van Diemen Gulf** (11° 50'S., 132° 10'E.) is bounded to the N by Coburg Peninsula, of which Cape Don is the W extremity; to the E and S by the mainland; and to the W by Melville Island. It is entered from the N by Dundas Strait or from the SW by Clarence Strait, and is frequently used by vessels plying between Torres Strait and Darwin.

The gulf, which is approximately 75 miles long in an E-W direction and has a breadth of 45 miles, is heavily encumbered by reef and shoals. Numerous islands and islets border its perimeter and large areas of the E half are not properly surveyed, thus requiring strict adherence to the charted track lines.

The shores of the gulf are generally low, marshy and reef fringed and are difficult to make out with the exception of Cape Don and the hills on the S side of Coburg Peninsula, and the cliffs and hills at the E end of Melville Island. The E side of the Gulf is intersected by numerous rivers of which the largest are the East Alligator and the South Alligator, both located in the SE extremity.

**Dundas Strait** (11° 20'S., 131° 40'E.), the N entrance to the Gulf of Van Diemen, is deep, wide, and clear, with irregular depths of over 37m. It is about 15 miles wide between Cape Don and the E extremity of Melville Island and follows a geographic axis of approximately NW-SE. Navigation is relatively easy through the strait, the main consideration being the tidal currents during poor visibility.

**Tides—Curr ents.**—The tidal currents in Dundas Strait run with considerable strength during spring tides and cause strong tide rips and a dangerous race, sometimes attaining a rate of 5 knots, off Cape Don. Through Dundas Strait, the current continues to run for about 2 hours after high or low water at Port Darwin.

During the rising tide the tidal current enters Dundas Strait from N and sets SE past Cape Don; during the falling tide the tidal current sets NNW out of the strait.

During the rising tide, the tidal currents setting S through Dundas Strait and E through Clarence Strait meet about 30 miles ENE of Cape Hotham (12° 03'S., 131° 18'E.); the uncertainty of this position, however, sometimes renders navigation in this part of the strait somewhat difficult, but vessels can usually maintain an accurate course by close scrutiny of the current tables on the appropriate charts.

In a position 1.25 miles S of Cape Keith (11° 36'S., 131° 27'E.), 28 miles NNE of Cape Hotham, the tidal current during the rising tide sets SSW, and NNE during the falling tide; both currents have a maximum rate of about 1 knot, but are irregular in duration, the westgoing current having been observed to run nearly continuously for about 22 hours.

From 1.5 to 3 miles SE of Ant Cliff (11° 47'S., 131° 11'E.), 20 miles SW of Cape Keith, the tidal current sets NE with the rising tide, with a maximum rate of 1 knot; during the falling tide the current sets SW with the same maximum rate.

At a position close S of Abbott Shoal (11° 50'S., 131° 31'E.), the currents are mainly rotary and attain a rate of about 2 knots at springs.

**Depths—Limitations.**—The depths throughout Van Diemen Gulf are very irregular, with numerous dangers across its full width. The recommended track between Dundas Strait and Clarence Strait has been well-surveyed and carries a least depth of 11.9m in Howard Channel, the main passage of Clarence Strait. Numerous shoals lie within distances of 0.5 mile of the track line and accurate navigation is required; however, vessels with drafts up to 10m can be taken through on high water neaps.

The E part of Van Diemen Gulf has not been fully surveyed, but is known to contain numerous dangers. Vessels without extensive local knowledge are recommended to keep clear of this part of the gulf, which may contain many uncharted shoals and reefs, and also less water than charted in the supposedly deeper areas.

**Pilotage.**—Torres Strait Pilots will take vessels to Darwin via Clarence Strait, providing prior arrangements have been made.

**Directions.**—Vessels proceeding W from Torres Strait or the Gulf of Carpentaria fix their positions on the track line approximately 6.5 miles N of **New Year Island** (10° 55'S., 133° 02'E.) and then, if so desired, proceed through Van Diemen Gulf via Dundas Strait and Clarence Straits for Port Darwin. This allows for a considerable saving in distance over proceeding W of Melville Island, which must be rounded well offshore to clear the off-lying shoals.

## West Side of Van Diemen Gulf

**2.24 Soldier Point** (11° 28'S., 131° 32'E.), about 1.5 miles SW of the E extremity of Melville Island, consists of a conspicuous red cliff about 11m high. A 32m hill rises close to the coast about 1 mile NNE of the point and obscures the point from N.

**Caution.**—The N coast of Melville Island, NW of its E extremity, has not been properly surveyed and should be given a wide berth.

A line of shoals, consisting of Hinkler Patches, Ommaney Shoals, and Renard Shoals, extends up to 12 miles S of Soldier Point, and with depths of 2.4 to 4m, place a considerable danger to southbound vessels proceeding too far W on the flood tide. Small vessels with local knowledge can proceed between Soldier Point and Hinkler Patches or between Ommaney Shoals and Renard Shoals, and take anchorage in the inner channel or Napier Bay. Caution is necessary in the Southeast Monsoon as the ebb tide then raises a short, steep sea.

**Cape Kieth** (11° 36'S., 131° 27'E.), 6m high, lies about 9 miles SSW of Soldier Point, with Napier Bay between. The cape is fringed with mangroves, and rises to a height of 27m about 1 mile inland. Baxendell Reef, which lies centered about 2 miles NNE of the cape, dries 0.9m.

**Cobham Bay** (11° 37'S., 131° 24'E.), located W of Camp Point, about 2 miles W of Cape Keith, has depths of 4m in its middle and can only be approached by small vessels. The shore

of the bay and the coast SW are low and bordered by mangroves.

**Conder Point** (11° 44'S., 131° 17'E.), about 14 miles SW of Cape Keith, is awash at high water and has a distinctive clump of mangroves on its S end; there are some conspicuous red cliffs, about 5m high, 0.6 mile W of the point. Nihill Patch, with a least depth of 2.1m, lies 1.75 miles S of Conder Point.

**Ant Cliff** (11° 47'S., 131° 11'E.), a small section of red cliff, lies about 6.5 miles SW of Conder Point, and is about 17m high and prominent.

The coast SW of Ant Cliff is described with Clarence Strait, beginning is [paragraph 2.30](#).

**2.25 Abbott Shoal** (11° 50'S., 131° 31'E.), with a least depth of 2.4m, lies about 14.5 miles ESE of Conder Point and is best rounded to the SE by all vessels. Abbott Shoal Lighted Buoy, equipped with a radar reflector, is moored close E of this danger, but it should never be wholly relied upon due to the strong tidal currents in the vicinity.

Several shoals lie between Abbott Shoal and Conder Point. Taiyuan Shoals, a long narrow ridge of coral and sand, has a least depth of 2.4m; the NE part of the shoal is marked by eddies. Beagle Shoals have a least depth of 1.2m; they are always marked by discoloration, and, except at slack water, by tide rips, while in bad weather they are marked by breakers. There are deep passages between these shoals, but they are not recommended without local knowledge as the tidal currents, which are strong at times, set directly across these dangers and precise navigation is necessary to clear them.

**Giles Shoal** (11° 42'S., 131° 45'E.), a gravel bank with a least depth of 1.5m, and **Wells Shoal** (11° 47'S., 131° 39'E.), a bank of coarse sand with a least depth of 7m, lie E of the track line about 19 miles ESE and 16 miles SE, respectively, of Cape Keith. An unsurveyed patch of about 18.3m lies about 4 miles N of Gillis Shoal.

Bill Shoal and Taylor Patches, with depths of 6.1m and 7.9m, lie S of the track line about 8 miles and 12.5 miles NE, respectively, of Cape Hotham. Bill Shoal is marked by eddies.

Dangers W of Taylor Patches are included with Clarence Strait, beginning in [paragraph 2.30](#).

## North and East Sides of Van Diemen Gulf

**2.26 From Cape Don** (11° 19'S., 131° 46'E.), the SW side of Coburg Peninsula trends about 25 miles SE to Warigili Point and is indented by several unsurveyed bays which are fringed by reefs, offshore rocks, and other dangers.

Fitzpatrick Shoal, with a least depth of 7.3m, sand, shell, and coral, extends from 4 to 7 miles SE of Cape Don, and is reported to be extending farther SE, with tide rips over its seaward extremity.

**Burford Island** (11° 29'S., 131° 57'E.), 21m high and covered with mangroves, lies about 15 miles SE of Cape Don and 3.5 miles offshore; the waters around it have not been closely examined.

**Warigili Point** (11° 33'S., 132° 07'E.), the S extremity of a headland that forms the SW end of Coburg Peninsula, is low and reef-fringed. Mount Bedwell and Mount Roe, two conical

hills, 130m and 158m high, respectively, lie about 4 miles NW of the point and form a good mark in clear weather.

Sir George Hope Islands, five in number, lie S and E of Warigili Point and extend in an E-W direction for about 14 miles. Greenhill Island, the W and largest of the group, lies 1.5 miles SSE of the point and has a conspicuous bluff on its NW extremity, off which lies a 4.6m shoal and a dangerous rock, the position of which is doubtful. The S end of the island is reef-fringed and covered with mangroves; the waters to the S and E are not well surveyed.

There is a passage between the N end of Greenhill Island and Warigili Point which is restricted by reefs extending from both sides, but a narrow channel, available to vessels with local knowledge, leads to a protected anchorage, in depths of about 11m, N of Sir George Hope Islands.

Warla Islet, 2 miles NE of the N extremity of Greenhill Island, is surrounded by rocks, with a shoal patch close E.

The remaining Sir George Hope Islands extend up to 4 miles E of Greenhill Island and are surrounded by shoal water and foul ground.

**Mataram Shoal** (11° 35'S., 131° 52'E.), with a least depth of 1.1m, sand and rock, lies about 8 miles SW of Burford Island. It has not been completely surveyed, but even in calm weather it is marked by heavy overfalls and tide rips.

Christine Reef, which dries 0.3m, lies about 11.5 miles SW of the SW extremity of Greenhill Island and has not been surveyed. Several shoal patches, the positions of some of which are approximate, lie within a radius of 11 miles of this reef, and Mataram Shoals have been reported to extend an unknown distance to the SE of these patches.

**Ann Shoals** (11° 42'S., 132° 12'E.) and **Margaret Shoal** (11° 46'S., 132° 17'E.) lie 5.5 miles and 11.5 miles SE, respectively, of the SE extremity of Greenhill Island. Ann Shoals, with a least depth of 0.4m, extend 3.5 miles in a NW-SE direction, and Margaret Shoal has a large patch of reef, which dries 3m.

**2.27** The E side of Van Diemen Gulf is very low and apparently swampy; it has not been closely examined and is difficult to approach because of extensive coastal shoaling.

**Endyalgout Island** (11° 41'S., 132° 34'E.) lies within the shore separated from it by shallow creeks; a dangerous drying reef extends a little over 3 miles from the SW end of the island, and Mogogout Islet lies about 3 miles WNW of the islands NW extremity.

The coast S of Endyalgout Island remains low and marshy, with salt water creeks intersecting the lowlands. Aralay Beach, 14 miles S of Endyalgout Island, provides an open stretch available to boats; the land rises slightly to the S.

**Mount Borradaile** (12° 03'S., 132° 54'E.), 138m high, rises inland about 17 miles ESE of Aralay Beach.

## South Side of Van Diemen Gulf

**2.28 Field Island** (12° 05'S., 132° 23'E.), located in the SE extremity of Van Diemen Gulf, is low and mangrove-covered. Reefs and foul ground surround the island and extend 2 miles SW to Barron Island, also low and surrounded by reefs.

**Beatrice Reef** (11° 53'S., 132° 12'E.), of sand and rock, dries on its W end about 14 miles NW of the NW end of Field Island.

**Victoria Shoal** (11° 54'S., 132° 02'E.), unexamined and of unknown length, lies with a drying patch of gray sand about 18 miles WNW of the NW extremity of Field Island.

**East Alligator River** (12° 06'S., 128° 15'E.), entered 10 miles E of Field Island, between Point Farewell to the W and the coast 3.5 miles E, has depths of about 2.7m in its entrance decreasing to 0.9m about 7 miles within. The river has been examined for a distance of about 17 miles and is about 200m wide.

**South Alligator River** (12° 09'S., 132° 26'E.) is entered between Field Island and Midnight Point, about 1.75 miles SE, via Cunningham Channel, with depths of 7.3 to 12.5m in the fairway. The river is navigable for vessels with drafts from 3 to 4.6m, depending on the season, for a distance of about 17 miles above its mouth. The E side of the entrance is low, but the W side rises to Mount Hooper, a wooded range with three peaks rising to about 61m. The river has been explored for a distance of about 36 miles and has soft mud banks thickly covered with mangroves. The surrounding country is mostly flat grass-covered plain with only a few hills to break the level appearance.

**West Alligator River** (12° 13'S., 132° 17'E.), entered about 8 miles SW of Field Island, appears shoal and has not been examined. Two drying patches, the W with some rocks on it, lie between the entrance and Field Island, but there appears to be a channel to the S from which the river could be approached.

**2.29 Finke Bay** (12° 13'S., 132° 04'E.), entered between the W entrance point of West Alligator River and Point Stuart, about 21 miles to the W, is mostly shoal and open to the N. Submerged rocks lie about 4 miles offshore in the E part of the bay and drying mud flats extend up to 2.5 miles E of Point Stuart; the land behind this point is low and apparently thickly wooded.

**Chambers Bay** (12° 12'S., 131° 36'E.), entered between Point Stuart and Cape Hotham, about 36 miles WNW, is a broad, open bay mostly shoal at its head. Ruby Island and several patches of reef lie in the NW part of the bay, and shoal water, with depths of 0.3 to 1.8m, extends up to 8 miles ENE of Cape Hotham.

**Barbara Shoal** (11° 53'S., 131° 45'E.), with a least depth of 3.7m, lies about 21.5 miles NNW of Point Stuart.

**Caution.**—Vessels without extensive local knowledge are recommended to give the S shore of Van Diemen Gulf a wide berth.

## Clarence Strait

**2.30** Clarence Strait, the W entrance to Van Diemen Gulf, leads between **Cape Gambier** (11° 56'S., 130° 58'E.), the S extremity of Melville Island, and Gunn Point and Cape Hotham on the mainland, 13 miles to the S, and 20 miles ESE, respectively. This passage is heavily encumbered by islands, reefs, and shoals, but is divided into three channels, namely, North Channel, Howard Channel, and South Channel, the

middle of which, Howard Channel, is marked and available to ocean-going vessels.

**Tides—Cur rents.**—In Clarence Strait, mean spring tides rise about 4.4m and mean neaps rise 3.4m. Mean low water neap tides usually maintain a rise of about 1m above datum. The least charted depth in the fairway of Howard Channel is 11.9m.

The rate of the tidal currents during mean spring tides is about 4 knots. During extreme high water, spring tidal current rates of about 6 knots have been observed. The best time for large vessels to transit the strait is about 2 hours before high water at Darwin, when the rate is about 0.5 knot.

**Pilotage.**—Torres Strait Pilots will take vessels, with drafts up to 9.1m, from Torres Strait to Darwin via Clarence Strait.

**Caution.**—The position of the lighted buoys marking the shoals in the approaches to Howard Channel should never be wholly relied upon because of the strong tidal currents in this area. Both buoys are equipped with radar reflectors and may show on the screen before the surrounding coastal features.

**Cape Hotham** (12° 03'S., 131° 18'E.), a low, wooded promontory fringed by a reef, is the SE entrance point of Clarence Strait and forms a good mark when approaching from NE.

Cape Hotham Light is shown from a white, metal framework tower 16m high, located about 0.6 mile WSW of Cape Hotham.

**Caution.**—A rocky spit extends about 1 mile N of Cape Hotham, and Howard Knoll, with a depth of 4.1m, lies 1.75 miles N of the cape.

Bill Shoal, Taylor Patches, and the dangers E of Cape Hotham have been previously described in [paragraph 2.25](#).

**2.31 Escape Cliff** (12° 08'S., 131° 15'E.), reddish in color and about 8.5m high, rises about 6 miles SSW of Cape Hotham and forms a good mark from NW in clear weather.

**Adam Bay** (12° 09'S., 131° 12'E.), centered between Escape Cliff and Point Stephens, about 5.5 miles WSW, is the estuary for the Adelaide River and provides shelter and anchorage for small vessels with local knowledge. Vessels up to about 200 tons can enter by steering SW for the low red cliffs on Point Stephens and then pass W of Middle Bank and the shoals NW of it. Vessels may anchor in depths of 4 to 8.8m, in an area known as Port Daly, 0.1 to 0.2 mile SE of Ayers Point.

The Adelaide River can be ascended by small vessels drawing up to 3m for a distance of about 40 miles to the bridge carrying the Arnhem Highway.

**Stephens Bank** (12° 07'S., 131° 11'E.), with a least depth of 3m, extends up to 4.75 miles NE of Point Stephens; it is covered by the red sector of Cape Hotham Light and should be given a wide berth.

**Glyde Point** (12° 10'S., 131° 07'E.), about 2.5 miles WNW of Point Stephens, is fringed by mangrove and fronted by a reef to a distance of 0.75 mile. The land behind these points is covered with trees rising only to a moderate height; the point is visible only in good conditions.

**Gunn Point** (12° 10'S., 131° 00'E.), the SW entrance point of Clarence Strait, is fronted by Gunn Reef, which extends up to 2.25 miles offshore and dries 4.3m. The point is heavily-

fringed with mangroves and the land about 3 miles S of it rises to a height of 55m at the top of the trees.

Foelsche Bank, with a least depth of 0.5m, extends about 3 miles SW from the NW extremity of Gunn Reef, with depths of less than 10m extending 3.25 miles farther W.

**2.32 Vernon Island** (12° 03'S., 131° 05'E.), consisting of East Vernon, North West Vernon, and South West Vernon, are three wooded, coral islands, each surrounded by a reef, which lie on the S side of Clarence Strait. The trees on all of these islands reach heights of 18 to 21m and the reefs, which are generally steep-to, are entirely covered at HW. East Vernon and North West Vernon Islands are completely covered with mangroves, but South West Vernon Island, with trees near its center, is only fringed with this growth.

**Knight Reef** (12° 01'S., 131° 06'E.), which dries up to 2.7m, lies close NE of the reef extending 3 miles E from North West Vernon Island. A sand bank on the E end of the reef dries 3.3m and can give a deceptive view of the extent of this danger when just drying out. A shoal, with a depth of 6m, was reported in 1980, about 0.75 mile NW of Ward Point, the W extremity of North West Vernon Island.

East Vernon Island Light is shown from a red, metal framework tower on concrete piers close off the S point of the island.

South West Vernon Light is shown from a white fiberglass structure, 3m high and fitted with a radar reflector, on the N extremity of the island.

North West Vernon Island Light is shown from a white hut on a steel pile structure, 9m high, about 0.4 mile NW of Ward Point.

**Cape Gambier** (11° 56'S., 130° 58'E.), the S extremity of Melville Island, is low and covered by mangroves, with a reef extending about 1.5 miles to the S and up to 4 miles NW along the coast. An extensive coastal bank, with depths of less than 6m, extends up to 14 miles E of the cape, almost to the meridian of Ant Cliff, and nearly 10 miles offshore. Dangerous reefs and rocks extend SSE from Cape Gambier almost to North West Vernon Island, and with the exception of North Channel, nearly block the N part of Clarence Strait. Hancox Shoal, with a least depth of 3.2m, coral, lies about 5 miles SSW of the cape.

**2.33 Howard Channel** (12° 05'S., 131° 05'E.), the main shipping channel through Clarence Strait, leads between East Vernon Island and North West Vernon Island, on the N side, and South West Vernon Island, on the S side; it is deep, and the only channel used by large vessels. It is entered from the E by passing S of Rooper Rock, and from the W by passing N of Marsh Shoal, and then proceeding on the recommended track. Complete reliance should not be placed on the lighted buoys being in their charted positions.

**Rooper Rock** (12° 04'S., 131° 11'E.), with a least depth of 5.5m, lies 5.75 miles E of East Vernon Island Light and on the N side of the recommended track. When the tidal currents are running with considerable force, there is a heavy race over this rock. A dangerous wreck exists approximately 0.4 mile SE of Rooper Rock.

A lighted buoy is moored about 0.3 mile SSE of Rooper Rock.

An extensive shoal, with a depth of 8.2m near its outer extremity, extends about 2.5 miles E of the SE extremity of East Vernon Island; depths of less than 11m extend up to 0.35 mile off the S side of the island and narrow the navigational channel to about 0.65 mile between the 11m curves to the N and S of the track. The center of the fairway has a least depth of 11.9m in this vicinity and requires accurate navigation by deep-draft vessels.

**Henry Ellis Reef** (12° 05'S., 131° 01'E.) and Van Waerwyck Reef, which dry 0.9m and 0.3m, respectively, lie between 0.75 mile and 1.5 miles NW of South West Vernon Island Light. Another drying reef lies between the former and the NW side of the island.

**Marsh Shoal** (12° 06'S., 130° 57'E.), with a least depth of 2.1m, is a extensive shoal area centered about 5 miles W of South West Vernon Island Light. The N side of this shoal is generally steep-to, but numerous patches of less than 11m extend up to 3 miles SW.

Lighted Buoy No. 4 is charted about 0.25 mile NW of Marsh Shoal and the recommended tracks pass N and W of it. Vessels are again cautioned to navigate with fixed aids when rounding this shoal.

Wood Rock, with a least depth of 5.5m, lies on the N side of the fairway, about 2.25 miles WSW of Ward Point, the W extremity of North West Vernon Island.

Several patches, with depths of 10.5 to 11m, lie from 5 to 7.5 miles W of Ward Point.

The recommended track SW from Marsh Shoal is continued under the Approaches to Port Darwin in [paragraph 2.42](#).

**2.34 North Channel** (12° 00'S., 131° 05'E.) leads between the reefs extending from Cape Gambier, on the N side, and Knight Reef and the reefs off North West Vernon Island, to the S. There are no clearing marks for any of the dangers in the channel and it can only be navigated in daylight, preferably at LW when the reefs can best be seen. In the narrowest part, between Oliver Reef and the reef extending from North West Vernon Island, the fairway has a width of about 0.75 mile between the 11m curves, but the water shoals rapidly within these limits. Prince Knoll, with a depth of 6.4m, lies about 2.25 miles ENE of Oliver Reef and may not be visible even at low water.

North Channel should not be attempted by large vessels; small vessels using it are recommended to have local knowledge as the tidal currents are strong and set across the fairway in places.

**South Channel** (12° 08'S., 131° 02'E.) leads between the S side of South West Vernon Island and the coastal reef which extends from Glyde Point to Gunn Point. There are no marks for clearing the reefs when they are covered and the channel is only used by local coasters and small craft.

A line of dangers extends 2.5 miles E from the E end of the reef off South West Vernon Island, and has a least depth of 1.2m near its outer end. The bar S of these dangers has a depth of 7.3m, but local knowledge is required to cross it.

## Melville Island

**2.35** The coasts of **Melville Island** (11° 30'S., 131° 00'E.) are generally low, and with the exception of the SE shore,

which is described in [paragraph 2.23](#) with Van Diemen Gulf, are unsurveyed or only partially examined. Numerous bays indent the shores, some leading to mangrove-fringed rivers which extend up to 15 miles into the interior of the N shore. The hills within the coast are mostly wooded and terminate in a series of low cliffs, generally in the vicinity of the NW part of the island. The hills near the S and SW shores, 6 to 11 miles within Cape Gambier (11° 56'S., 130° 58'E.), rise to heights of 76 to 120m, but with the exception of Notch Peak, are difficult to identify.

**Point Jahleel** (Point Jaheel) (11° 11'S., 131° 17'E.), the NE extremity of Melville Island, is mostly low, reef-fringed, and covered with mangroves and trees. Elphinstone Reef, with a least depth of 1.2m, lies about 6 miles ESE of Point Jahleel and nearly 3 miles offshore; the flood tidal currents set down on it at a rate of 2.75 knots, and it should be given a wide berth.

In 1971, a depth of 7.9m was reported about 4 miles N of Jahleel Point, and a depth of 8.5m was reported about 9 miles NW of the point. The coast SE of the point, to the E end of the island, is formed by several sandy bays, but has not been surveyed.

**Smokey Point** (11° 15'S., 131° 09'E.), about 8.5 miles WSW of Jahleel Point, is reef-fringed and shoal. Breton Bay, E of Smokey Point, leads to Johnston River, but has not been surveyed and appears dangerous.

**Radford Point** (11° 18'S., 130° 54'E.), about 15 miles WSW of Smokey Point, is rocky with foul ground extending about 1.25 miles from it. Madford Shoals, two drying patches which usually break, lie 3 miles NE and 3.5 miles ENE, respectively, from the point. Shoal water, with a depth of 7.3m on its outer extremity, extends about 20 miles WNW of the same point.

Lethbridge Bay, with depths of 4.6 to 5.5m just within its entrance, lies about 7 miles ESE of Radford Point and is occasionally used during the Southeast Monsoon as an anchorage for small vessels.

**Burra-burra Head** (11° 22'S., 130° 42'E.), with conspicuous red cliffs extending up to 1.5 miles SW, lies about 8 miles WSW of Radford Point. Laxton Reef, which dries 5m, and Saunders Patch, with a depth of 2.5m, lie 1.25 miles NW and 3 miles NNW, respectively, of the head.

**Cape Lavery** (11° 20'S., 130° 39'E.), the N extremity of a peninsula, lies about 15 miles W of Radford Point and is low and surrounded by shoal water. Karslake Island, 41m high at the tree tops, lies a little over 1 mile N of Cape Lavery, with foul ground extending about 1 mile farther NW.

Snake Bay, entered E of Karslake Island, has general depths of 6 to 8m, but shoals rapidly between Cape Lavery and Brown Point, 4 miles SE.

Anchorage can be found, in 5.5m, good holding ground, about 0.4 mile WNW of Brown Point. A narrow channel, entered over a bar with a depth of 5.2m, lies close E of the peninsula S of Cape Lavery, and leads to an estuary between Curtis Haven. A native welfare settlement is situated on the W shore of the channel about 5 miles S of the cape, but only small vessels with local knowledge can reach it.

Shark Bay, entered between Karslake Island and Purumpenelli Point, about 3.5 miles W, is narrowed in its outer part to a width of about 1 mile by dangerous foul ground.

Within the entrance, the bay widens somewhat and has depths of 3 to 5.5m, but it shoals rapidly toward its head.

**2.36 Cape Van Diemen** (11° 10'S., 130° 23'E.), the NW extremity of Melville Island, terminates in a low, sandy point, from which a spit of sand and rock, with numerous drying sand cays, extends about 6 miles to the NNW.

From the NE extremity of Cape Van Diemen, the coast is formed by a line of low cliffs extending intermittently 8.5 miles SE and terminating in a coastal hill about 34 miles high. Although radar returns may be received from these cliffs by vessels on the offshore track, considerable difficulty would probably be experienced in determining an exact position from them.

**Mermaid Shoal** (11° 09'S., 130° 13'E.), an area of foul ground with depths of less than 5.5m and with numerous submerged rocks, extends up to 18 miles W of Cape Van Diemen. The N side of this shoal is steep-to, with overall depths of 7.3 to 18m.

The S side of Mermaid Shoal forms the N side of the approach and entrance to St. Asaph Bay at the N end of Apsley Strait. This area has only been partially examined and less depths than charted may exist.

## Off-lying Dangers

**2.37 Goodrich Bank** (10° 42'S., 130° 19'E.), with a least depth of 12.8m, gravel, lies about 27 miles N of Cape Van Diemen and about 4 miles N of the recommended track.

A depth of 16.1m lies about 21 miles WSW of Goodrich Bank.

**Cootamundra Shoal** (10° 51'S., 129° 13'E.), with a least depth of 14.8m, lies about 71 miles WNW of Cape Van Diemen.

**Calder Shoal** (10° 51'S., 129° 04'E.), with a least depth of 20.6m, lies about 9 miles W of Cootamundra Shoal. Vessels proceeding to the Philippine Islands from Darwin, or from N of Melville Island, proceed on the recommended track about 5.5 miles SW of this shoal.

**Marie Shoal** (10° 55'S., 130° 06'E.), with a least depth of 9.1m, lies about 22.5 miles NW of Cape Van Diemen. The recommended track for vessels proceeding to Port Darwin from NNW of Cape Van Diemen passes 3 miles NW of this shoal. A depth of 16.5m and discolored water were reported (1977) close S of the southernmost recommended track, 4.5 miles WNW of Marie Shoal.

**Parry Shoal** (11° 12'S., 129° 42'E.), composed of coral on which the sea occasionally breaks, has a least depth of 11m and lies about 40 miles W of Cape Van Diemen.

**Moss Shoal** (11° 08'S., 129° 55'E.), steep-to and with a least depth of 7.6m, lies about 27 miles W of Cape Van Diemen and 4.5 miles E of the recommended track for Port Darwin. Vessels rounding this shoal from NE set their course on 169° to proceed to a position about 8.5 miles NW of Cape Fourcroy (11° 47'S., 130° 01'E.), and then steer S for the main Darwin tracks.

**Mesquite Shoal** (11° 13'S., 130° 01'E.), steep-to on its W side, has a least depth of 5.5m and lies about 21 miles WSW of Cape Van Diemen.

**Caution.—Lynedoch Bank** (10° 02'S., 130° 49'E.), with a least known depth of 9.8m, sand and coral, lies about 72 miles NNE of Cape Van Diemen.

Evans Shoal and Franklin Shoal, each with a least known depth of 9.1m, coral, and Flinders Shoal, with a least known depth of 6.8m, coral, lie grouped in an area centered about 95 miles NW of Cape Van Diemen. These shoals and the surrounding waters have not been closely examined and less depths than charted may exist.

**Loxton Shoal** (9° 36'S., 128° 43'E.), with a least known depth of 10.3m, coral, lies about 136 miles NW of Cape Van Diemen. Several shoals, including Martin Shoal, Troubadour Shoals, and Sunset Shoal, all lie within a radius of about 23 miles to the E, S, and W of Loxton Shoal. The least depth charted in this area is 7.5m, but the general vicinity has not been closely examined and lesser depths than charted may exist.

## Apsley Strait

**2.38 Apsley Strait** (11° 30'S., 130° 25'E.), which separates Melville Island from Bathurst Island, can be entered at its N end by small vessels with local knowledge. The S part of the strait is narrow and tortuous with numerous rocks in the channel, and generally only used by small craft.

St. Asaph Bay and Port Cockburn, just within the N entrance to Apsley Strait, are deep and wide and provide good anchorage for vessels able to enter. The land on both sides is generally low and thickly wooded, with numerous palm trees along the shores.

**The Narrows** (11° 17'S., 130° 18'E.), at the N entrance to Apsley Strait, is restricted to a width of about 1 mile by the S side of Mermaid Shoal and the N end of a sandy spit extending from Brace Point, the N extremity of Bathurst Island. During daylight vessels with local knowledge can enter in a depth of about 9.1m by steering for the S wooded extremity of Piper Head bearing 090°, until Luxmore Head, about 5 miles SSE, can be steered for on an approximate SE bearing. Considerable caution is required as there are no channel aids available. A depth of 1.5m lies on the S side of the channel 3 miles NW of Brace Point.

**St. Asaph Bay** (11° 19'S., 130° 22'E.), entered between Piper Head and Brace Point, has general depths of 13 to 22m over a width of about 2 miles. Luxmore Head, at the SE end of the bay, consists of a series of rocky points with red cliffs to the S. The whole of the E shore is fronted by a rocky reef, and the land within is generally low and wooded.

The W shore of St. Asaph Bay is fringed by sandy beaches forming small bays where landing can be easily effected. The land rises gently within and several fresh water streams flow from the hillsides.

**Port Cockburn** (11° 22'S., 130° 23'E.), immediately S of St. Asaph Bay, extends SSE to Harris Islet about 5 miles from Luxmore Head. The E shore, consisting mostly of steep red cliffs backed by trees, is fringed by shoal water with numerous rocky heads, but the W shore is generally deep and clear of dangers. Garden Point, 4 miles SSE of Luxmore Head, is fronted by a reef which extends nearly 1 mile to the WNW; a mission station equipped with a radio and an airstrip, is situated on the point.

Tidal currents at the W entrance to the narrows set E on the flood and W on the ebb, with a maximum rate of about 2 knots at springs. The rate is about the same in the approach to Port Cockburn but somewhat less in St. Asaph Bay, which is wider and less restrictive.

**2.39** The S part of Apsley Strait, from **Harris Islet** (11° 26'S., 130° 24'E.), takes a SSE direction for about 30 miles with general depths of 7.3 to 26m; it has never been thoroughly examined, and uncharted dangers may exist. Near the S entrance the depths become very irregular, the channel being encumbered with rocks and drying shoals. These dangers, together with the strong tidal currents which sometime attain a rate of 4 knots, render Apsley Strait unsuitable in its entirety except for powerful small craft with local knowledge.

The shores are mostly low and covered with mangroves, with no noticeable features except for the entrances to the various rivers emptying into the strait.

**Medina Inlet** (11° 51'S., 130° 35'E.), the S entrance to Apsley Strait, is only about 0.5 mile wide. It attains a NE-SW direction from close off the SE extremity of Bathurst Island. The radio tower on Mission Hill, about 4 miles NW of the SE extremity of Bathurst Island, is prominent. Tidal currents follow the general direction of the channel and can reach 4 knots at springs. Pilotage is not available and local knowledge is recommended. The channel, with a least depth over the bar in 1996 of 3.7m, leads E of the shore of Bathurst Island. A drying ridge extends about 5 miles SW of Buchanan Island and forms the SE side of the channel, but the waters to the W and S are unsurveyed. A mission station is situated off the E end of Bathurst Island where Medina Inlet meets Apsley Strait.

## Bathurst Island

**2.40** The NW and S coasts of Bathurst Islet are unsurveyed, with the exception of the waters about 12 miles N and W of Cape Fourcroy, the SW extremity. The NW shore of the island is formed of a series of bays and inlets and fronted by rocky shoals which extend some distance offshore. The land backing the coast is generally wooded with mangroves thickly formed within the inlets. The N end of the island is mostly low with a few small hills rising above the woodlands, but the S shore is high and cliffy with heights of over 61m closely backing the coast. The island is separated from Melville Island by Apsley Strait, previously described in [paragraph 2.38](#).

**Brace Point** (11° 19'S., 130° 20'E.), the N extremity of Bathurst Island, is low and poorly defined. A sandy spit extends about 2.5 miles N of the point and coastal shoaling, the limits of which have not been defined, extends 3 to 4 miles offshore between the point and Rocky Point, 16 miles SW.

**Rocky Point** (11° 29'S., 130° 09'E.), the NW extremity of Bathurst Island, is fringed by reefs and fronted by submerged rocks to a distance of up to 3 miles offshore between its S extremity and Caution Point, 4 miles NNE.

Clift Islet lies close to the shore, 4 miles SSE of Rocky Point. The area between the point and this islet, and up to nearly 6 miles offshore, has not been examined.

**Gordon Bay** (11° 39'S., 130° 07'E.), entered between Clift Islet and Cape Helvetius, about 9 miles SW, affords good

shelter during the Southeast Monsoon for small vessels with local knowledge.

Twin Cliffs, with a sandy cove indenting the shore between them, lie on the SE shore of Gordon Bay; there is a sandy beach between them and Cape Helvetius. Port Hurd, an inlet entered about 3 miles NE of Twin Cliffs, is deep and about 0.5 mile wide; however, it is fronted by a bar with a depth of 2.7m.

**2.41 Cape Fourcroy** (11° 48'S., 130° 01'E.), the SW extremity of Bathurst Island, is faced by conspicuous dark red cliffs from 9 to 12m high; a sandhill, about 20m high, lies about 1 mile NNE of the cape. Reefs and foul ground extend up to 0.75 mile off the cape and a shoal, with a depth of 5.5m, lies about 2.5 miles to the NNW. A light is shown from a 15m high, white metal framework tower on the cape.

From a distance Cape Fourcroy and Cape Helvetius, 7 miles NNE, somewhat resemble each other, but the former can be identified by the light tower and other buildings on it. Caution is required by vessels passing W of the capes during poor visibility, as radar returns from Cape Fourcroy have been reported poor and vessels may find themselves approaching Cape Helvetius, from which shoal water extends nearly 7 miles to the NNW.

The S side of Bathurst Island from Mitchell Point, about 3.5 miles SE of Cape Fourcroy, is formed by a line of prominent sandhills and cliffs extending about 27 miles E nearly to the SE extremity of the island.

**Radar Hill** (11° 50'S., 130° 05'E.), a conspicuous sandhill about 56m high, with a cliff at its base, rises about 2 miles E of Mitchell Point, and along with Penguin Hill, 69m high and conical, about 1.5 miles E, forms a good mark from S.

**Castle Hill** (11° 48'S., 130° 11'E.), about 1.25 miles long in an E-W direction, rises to a height of 61m about 7 miles E of Mitchell Point. Lubra Point, fringed by reefs, is situated about 1 mile E of the hill, and a cliff, approximately 30m high and nearly 1 mile long, is situated on the shore, about 3.5 miles ENE of the point.

The coast from the latter cliff trends ENE for 3.5 miles, and then 18 miles ESE, to the entrance of Medina Inlet. The shore is closely backed by wooded hills rising to heights of about 105m, with two stretches of cliffs, about 37m and 30m high, located 13 and 18 miles E, respectively, of Lubra Point.

## Approaches to Port Darwin

**2.42 Beagle Gulf** (12° 10'S., 130° 19'E.), entered between Mitchell Point on the N and **Point Blaze** (12° 56'S., 130° 08'E.) to the S, forms the W approach to Clarence Strait and Port Darwin. It is generally deep, wide, and clear, but requires caution to avoid the shoals fronting its shores and head. Shepparton Shoal, described below, lies in the middle of the entrance to the gulf and vessels are recommended to keep clear of it, especially in heavy weather.

The coast from **Charles Point** (12° 23'S., 130° 37'E.), for a distance of 25 miles SW, is fronted by shoals and reefs which extend up to 20 miles offshore in places, and vessels approaching Beagle Gulf from W or SW should steer to round the outer dangers at a distance of at least 6 miles before turning in for the entrance of Port Darwin.

**Newby Shoal** (11° 52'S., 129° 11'E.), with a least depth of 12.8m, lies about 50 miles W of Cape Fourcroy and is apparently of coral formation. A bank, with a least depth of 15.8m, lies about 25 miles NE of Newby Shoal.

**Shepparton Shoal** (12° 06'S., 129° 53'E.), with a least depth of 11.3m, sand and coral, lies 20 miles SSW of Cape Fourcroy. A heavy swell may build up over this bank during the Northwest Monsoon.

**Afghan Shoal** (11° 54'S., 130° 08'E.), with a least depth of 1.2m, extends 7.5 miles ESE from a position 3.5 miles S of **Mitchell Point** (11° 49'S., 130° 03'E.). This shoal lies partially outside the arc of visibility of Cape Fourcroy Light, and the early part of the ebb tidal current sets down on it from S.

A shoal, with a least depth of 6.4m, lies about 19 miles E of Afghan Shoal.

The historic wreck of a Japanese submarine lies about 13 miles S of Afghan Shoal and a protected zone, with a radius of 500m, within which unauthorized activities are prohibited, has been established around the wreck.

**Lorna Shoal** (12° 21'S., 130° 19'E.), the northernmost of the dangers fronting the shore SW of Charles Point, consists of four patches with a least depth of 3.2m centered about 18 miles W of the point. No attempt should be made to pass S of this shoal as numerous dangers, both drying and submerged, lie to the SE.

**2.43 Fenton Patches** (12° 12'S., 130° 43'E.), with a least depth of 13.1m, consist of an area of irregular soundings centered about 12.5 miles NNE of Charles Point. Vessels approaching Port Darwin from Clarence Strait pass SE of Fenton Patches. A wreck, marked on its NW side by a buoy, lies close NW of Fenton Patches; obstructions lie about 1 mile SE and 1 mile S of this wreck.

Moresby Shoals, Lowry Shoal, and Skottowe Shoal, with least depths of 6.1m, 6.7m, and 8.8m, respectively, are a series of scattered patches centered about 14 miles WSW of Cape Gambier (11° 56'S., 130° 58'E.). Vessels are cautioned to keep clear of this area, as surveys N of these dangers are incomplete and navigation in their vicinity would be difficult.

**Directions.**—Vessels approaching Port Darwin from Torres Strait generally use Clarence Strait proceeding on the recommended tracks. From a charted position about 1 mile N of Marsh Shoal Lighted Buoy, a course of 223° 30' leads to the general vicinity of Charles Point Lighted Buoy No. 5.

Vessels not wishing to use Clarence Strait proceed to a position 30 miles NW of Cape Van Diemen (11° 10'S., 130° 23'E.) and then steer 213°, passing midway between the charted 14.6m and 16.4m depths, to a position 5 miles WNW of Moss Shoal. From this position steer 169° to a position 10 miles 325° from Cape Fourcroy Light. From the latter position, a course of 180° is steered for a position 9 miles 218° from the same light, and then 119° for the vicinity of Charles Point Lighted Buoy No. 5.

When coming from W follow the track indicated on the chart, passing approximately 5 miles N of Lorna Shoal and then steer 101° 30' for the vicinity of Charles Point Lighted Buoy No. 5.

## Entrance to Port Darwin

**2.44** Port Darwin is an estuary of considerable size and is approached between Lee Point (12° 20'S., 130° 54'E.) and Charles Point, about 17 miles WSW. The W side of Port Darwin, from Charles Point to Talc Head, is described; then the E side of Port Darwin, from Lee Point to Fort Point is described. Channel dangers are then described from N to S.

**Charles Point** (12° 23'S., 130° 37'E.) is low and faced by reddish cliffs on its E side; a rocky ledge, which dries, extends 0.5 mile NW from the point, and shoal water with depths of less than 1.8m, extends 1.5 miles to the NE.

A light is shown from a conspicuous red and white framework tower standing about 1 mile ESE of the point. Radio masts stand about 1.5 miles SSE and 8.5 miles SE of the light structure.

The coast between Charles Point and **West Point** (12° 26'S., 130° 46'E.), 9 miles ESE, is low and is fronted by a coastal bank, which dries and has rocky ledges on it. Several shoal patches exist between the coast and Charles Point Patches, 4 miles NE. A pier extends out to a depth of 3m, about 0.4 mile SSE of West Point. A dangerous wreck lies about 0.8 mile ESE of the head of the pier.

**2.45 Talc Head** (12° 29'S., 130° 47'E.), 2.5 miles SSE of West Point, is a conspicuous, narrow cliffy promontory, 19m high, that is covered with brush. It forms a useful mark in making for Port Darwin.

**Lee Point** (12° 20'S., 130° 54'E.), on the E side of the approach, is low, with rocky ledges extending nearly 1 mile NNW of it.

A conspicuous hospital, with a chimney 73m in elevation, stands about 1.5 miles SSW of Lee Point; it is a useful aid when approaching from W.

Angler Reef, with depths of less than 1.8m, lies 1.75 miles NW of Lee Point.

**Night Cliff** (12° 23'S., 130° 51'E.) is located 3.75 miles SW of Lee Point; the coast between is fronted by a drying bank of weed, sand, and mud and is fringed with casuarina trees. Old Man Rock, which dries 5.6m, lies 2.5 miles SW of Lee Point. A conspicuous water tower stands at an elevation of 39m, about 0.5 mile S of the NE end of the cliff; a second water tank stands about 0.25 mile ESE of the water tower.

An aeronautical light beacon is occasionally shown from a conspicuous water tank about 3 miles SSE of Night Cliff. An aeronautical radiobeacon transmits from a position about 5.5 miles E of the light beacon.

**2.46 East Point** (12° 25'S., 130° 49'E.), about 3.5 miles NE of West Point, is formed of cliff and attains a height of 22m. Drying reef fronts the point for a distance of 0.35 mile.

**Emery Point** (12° 27'S., 130° 49'E.), about 3 miles S of East Point, is formed of low cliffs about 6m high. A sand bank, which dries up to 3.9m on its S part, extends 2 miles N of the point.

Emery Point Light is shown from a white, metal framework tower on the extremity of the point. A red sector of the light covers the above sand bank. When entering, vessels steer for this light between the bearings of 135° and 139°. It has been

reported (2000) that the light structure has been difficult to locate during the day.

**Elliott Point** (12° 28'S., 130° 49'E.), about 0.3 mile SSE of Emery Point, is a cliffy promontory 10m high.

The Naval Base is situated about 0.35 mile SE of Elliott Point; the approach between the breakwaters is indicated by a range which is shown on the chart.

**Fort Point** (12° 28'S., 130° 51'E.), about 2 miles SE of Emery Point, rises to Fort Hill, which is 23m high. A conspicuous silo, 43m in elevation, stands on a point near the quarantine station, about 3.25 miles ESE of Fort Point.

**2.47 Charles Point Patches** (12° 21'S., 130° 40'E.), with a least depth of 2.3m and marked by tide rips, lie from 3 to 5 miles ENE of Charles Point. Charles Point Lighted Buoy No. 5 marks the NE extremity of these patches. A detached 8.2m patch is marked on its NE side by Charles Point Lighted Buoy No. 5. There is an area of sandwaves, with depths of not less than 10m, about 1 mile ESE of this patch; ESE of this same patch, and joining up with Middle Ground, there are several other detached patches with depths of less than 10m.

**Middle Ground** (12° 22'S., 130° 46'E.), with depths of 2.3 to 10.0m, extends about 6.5 miles NW of East Point and is covered by the red sector of Emery Point Light.

**Caution.**—Unexploded ordnance lies in a depth of 13m, in an area with a radius of 0.5 mile, centered NE of Middle Ground, about 3.75 miles NW of East Point.

**Channel Rock** (12° 25'S., 130° 47'E.), with a least depth of 6.3m, lies 2 miles WSW of East Point and is usually indicated by tide rips and overfalls. A lighted buoy is moored close SW of this danger.

**Abbot Patches** (12° 28'S., 130° 48'E.), with depths of 7.3 to 10.1m, extend about 1.25 miles SSE from a position 1.25 miles W of Elliot Point; they are marked by a lighted buoy.

Two dangerous wrecks lie close W of the S extremity of Abbot Patches; an experimental fish device lies in the same position.

**Bennett Shoal** (12° 28'S., 130° 50'E.), with a depth of 4.6m, lies 1 mile SE of Emery Point and is marked by a lighted buoy.

A dangerous wreck lies about 0.65 mile S of Fort Point. A submarine pipeline extends about 0.5 mile S from a position on the shore about 0.9 miles ESE of Emery Point.

## Darwin (12° 28'S., 130° 51'E.)

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**2.48** Darwin is the principal port on the N coast of Australia. A line between Charles Point and Lee Point, 17 miles ENE, marks the extent of the port limit. The city is the administrative center of the Northern Territory and is of considerable importance. It stands on a table about 20m high and is favored by cool breezes throughout the year.

Numerous vessels, including ore carriers of considerable size, enter Port Darwin; the large tides in this area enable deep drafts to be accommodated.

**Darwin Port Authority Home Page**

<http://www.nt.gov.au/dpa>

## Winds—Weather

Darwin is under the influence of the monsoon seasons year around. The Northwest Monsoon blows from November to April with occasional winds from E, especially at night. From April to September the Southeast Monsoon prevails and is strongest in July. The transition period occurs in October and winds are generally light.

The cyclone season extends from November to April. Ships may be placed on short notice for sea and required to maintain themselves in seagoing condition at all times.



*Courtesy of Darwin Port Authority*

**Darwin—Ir on Ore Wharf (front), Fort Hill Wharf (center), and Stokes Hill Wharf (rear) from W**



**Darwin—Ir on Ore Wharf (left), Fort Hill Wharf (center), and Stokes Hill Wharf (right) from SW**

Visibility during the latter part of the Southeast Monsoon is often reduced by haze, and objects are frequently obscured at a distance of 3 miles. During the Northwest Monsoon, the visibility is usually good, except in the vicinity of thunderstorms and squalls.

The rainy season commences during the latter part of October and lasts about 5 months, with the greatest amount falling in January and February. From May to September, during the Southeast Monsoon, rain is very rare.

Temperatures range from a high of 37° C in summer to a low of 15° C in winter

### **Tides—Curr ents**

Near the entrance to the harbor, the strength of the tidal currents diminishes considerably, and the direction within the harbor usually corresponds with the direction of the channel.

During the flood current, considerable eddies may be experienced close to the wharves. These eddies often produce a current setting directly towards the jetties, or sometimes running along the jetties in a direction opposite to the current at a position about 200m off them. During the ebb current, the currents close to the jetties run in the same general direction as those offshore, but care must be taken to guard against the fact that the currents do not always run directly along the jetties, but may set towards or away from them. The currents in this area are considerably affected by heavy rains and by strong NW or SE winds.

Owing to the strong tidal currents, discoloration is present at all times, and during springs, a turgid, muddy color is seen in the harbor, the whole of which is disturbed by eddies.

Mean high water spring tides rise 6.9m. The mean high water neap rise is 5m; low water neaps usually maintain a height of about 2m above datum, but the tides are mixed, which varies the daily heights.

Tidal currents in the approach channel, about 6 miles NW of East Point, run in the direction of the fairway at a rate of 1 to 2 knots, although a 4 knot ebb current has been reported (2000).

The flood commences about 5 hours before HW and the ebb about 1 hour after HW. The currents become rotary at both HW and LW, with little slack.

Off East Point, the currents run mainly NNW and SSE, and attain rates of 3 to 4 knots at springs.

Currents in the vicinity of the quarantine anchorage run mostly NW and SE at rates up to 2 knots.

### **Depths—Limitations**

Darwin is approached between Charles Point Patches and Middle Ground through Middle Pass (12 21'S., 130 43'E.) and is entered between Charles Point and Lee Point. Middle Pass is a deep water route through the isolated patches of less than 10m which lie across the fairway between Charles Point Patches and the NW end of Middle Ground; it is marked by lighted buoys and is the main approach channel for deep-draft vessels.

The least depth in the fairway from the Fairway Buoy at Charles Point to the quarantine anchorage, located SW of the wharves, is 9.4m.

Vessels up to 245m in length, with drafts up to 12m, are generally the maximum size accepted. Greater drafts may be accepted by prior consultation, depending upon tidal predictions; vessels up to 246m in length and 12.8m draft have been accommodated. No restrictions on beam are in force.

Stokes Hill Wharf, the main general cargo berth, is a concrete-decked, steel-piled wharf with a trestle approach. Berth 3E and Berth 3W, on the outer side of the wharf, are each 146m long, with an alongside depth of 9m. Bulk, container, and general cargo are handled.

Berth 4E and Berth 4W are located on the inner side of Stokes Hill Wharf. Each berth is 80m long, with an alongside depth of 4.5m. Fishing vessels and pleasure craft, with a maximum length of 70m and a maximum draft of 4.5m, can be accommodated.

Bulk Ore Wharf, also called Berth 1, is a dolphin-type berth with a face length of 142m; mooring dolphins are located 69m E



*Courtesy of Darwin Port Authority*

#### **Darwin—East Arm Port from SE**

and W of the wharf. The wharf can accommodate vessels up to 250m long, with a maximum draft of 11.5m, to discharge bulk petroleum, sulfuric acid, and LP gas.

New Fort Hill Wharf stands close NE of Bulk Ore Wharf. Berth 2W and Berth 2E are each 150m long, with an alongside

depth of 12m. Vessels with a maximum draft of 11.7m can be accommodated.

A ro-ro terminal is located at the W end of New Fort Hill Wharf. A pontoon can be extended or retracted, thus enabling ro-ro vessels of any size or type (side-loading, end-loading, quarter-loading, port or starboard side-to) to use the Port of



*Courtesy of Darwin Port Authority*

### **Darwin—East Arm Port from W**

Darwin. When the pontoon is retracted, its outer end forms an extension of the New Fort Hill Wharf, and can then be used for vessels such as car carriers with side doors.

Fort Hill Wharf No. 4 (Old Fort Hill Wharf) is presently restricted to small or special vessels by arrangement with the harbormaster.

A shipyard for small craft is situated on the W side of Frances Bay, with depths of up to 5.5m in the vicinity. There are moorings for small craft in the S part of the bay.

East Arm Port is located about 2.5 miles ESE of Fort Point. The berthing face is 490m long, with depths of 13 to 14m alongside. Vessels up to 246m long, with a maximum draft of 12.8m, can be accommodated. Bulk cargo, general cargo, and livestock are handled at this facility.

### **Aspect**

A radio mast and a water tower, both conspicuous, stand about 1.25 miles E and about 1 mile ESE, respectively, of the light on Emery Point. A conspicuous white building of unusual shape stands about 1 mile ENE of the light structure, but is obscured by East Point when bearing greater than 160°. Due to the close proximity of other prominent towers, caution is advised when identifying individual marks.

Peak Hill, 30m high and covered with bush, rises about 5 miles SE of Emery Point and is occasionally used as a leading mark for entering the port.

Kings Table, 47m high, is a circular, flat-topped hillock about 7 miles SSW of Emery Point. It is the highest land in the Darwin area and can be seen from the approach in clear weather.

Stokes Hill is located about 0.5 mile NE of Fort Point. Frances Bay, consisting mostly of drying flats except for an area on the W side, lies E of Stokes Hill.

### **Pilotage**

Pilotage is compulsory for all craft exceeding a length of 25m unless a current Pilotage Exemption is held by the master.

Notice of ETA and request for a pilot must be made to the harbormaster not less than 24 hours before ETA at Channel Rock Buoy and confirmed 2 hours before arrival. The

harbormaster continuously monitors VHF Channels 16 and 67 and the ETA may be confirmed or adjusted on these frequencies. Port working frequencies are VHF channel 8, 10, and 12. Pilot boats are painted with a white and yellow superstructure and a blue hull with the word "PILOT" on each side.

The usual pilot boarding point is 1 mile NW of Channel Rock Buoy No. 6. With prior arrangement, vessels with a draft of over 9m will board the pilot about 1 mile NE of Charles Point Patches Lighted Buoy No. 5. In case of bad weather, the pilot boat will lead ahead to sheltered waters, using the VHF. Pilot boarding arrangements must be in accordance with IMO rules.

Vessels awaiting a pilot may anchor between 1 and 2 miles NW of Channel Rock Buoy, in 25m of water, sand bottom and good holding ground.

### **Regulations**

Darwin is within the southern zone of tropical revolving storms. The season extends from November to April each year and the Port may be more or less affected at any time during that period. All vessels entering Darwin during the "cyclone season" are supplied with copies of the Port Procedures, which set out in full the various stages of alert and preparation to be observed in the case of an approaching cyclone. Vessels may be placed on short notice for sea in such circumstances and required to maintain themselves in seagoing condition at all times.

Vessels must not immobilize main engines without prior permission from the harbormaster. Tankers will not be allowed to shut down main engines while working cargo. Petroleum tankers are not moved during hours of darkness except in emergency conditions.

Vessels with a draft greater than 12m may need to await the tide before crossing Charles Point Patches.

**Vessel reporting system.**—Vessels are to report at the following points:

1. Inbound—When entering the Deep Water (DW) channel in position 12° 18.2'S, 130° 41.1'E, and when passing the inner DW channel in position 12° 25.2'S, 130° 10.6'E.
2. Outbound—When passing the inner DW channel in position 12° 25.2'S, 130° 10.6'E.

### **Anchorage**

Anchorage is available anywhere in the harbor where the depths are convenient and anchorage is not prohibited. The holding ground is good, but vessels remaining for more than a short period during the Northwest Monsoon should moor because of the stronger currents during the wet season.

Vessels under quarantine must anchor in the quarantine anchorage SW of Fort Hill until cleared. A lighted buoy, painted yellow, marks a foul area in this anchorage.

**Prohibited anchorage.**—Anchorage is prohibited, due to power and telephone cables in the charted area, within the limits of East Point and the coast just W of West Point to the N, and between Elliot Point and Oak Point to the S. There is a foul area between Emery Point to the E and Oak Point to the W. Vessels are cautioned not to anchor, trawl, or sweep within the

area indicated due to the remains of boom defense netting and cables.

Vessels must not anchor in the vicinity of the pipeline E of Bennet Shoal. Anchorage is also prohibited in an area SE of Fort Point, as best seen on the chart.

Vessels should keep clear of the Naval Area encompassing all the waters of West Arm and Middle Arm.

## Caution

It has been reported (2001) that when using the deep water approach to Darwin, the visual appearance of Lighted Buoy A and Lighted Buoy B, located E of Charles Point Patches, gives the illusion that these buoys are incorrectly charted.

## Charles Point to Cape Hay

**2.49** The coast and waters between Charles Point, the W entrance point of Port Darwin, and Pelican Islet (14° 46'S., 128° 47'E.), about 183 miles SW, have not been thoroughly examined and should be given a wide berth at night or during poor visibility. Vessels running this coast under these conditions are advised to stay in depths of 37m or more until making an approach to port.

Inshore of Lorna Shoal (12° 21'S., 130° 19'E.), previously described in [paragraph 2.42](#), there are numerous scattered shoals and reefs, some of which dry up to 6m. Jones Bank and Bass Reef, both of which dry up to 0.6m, lie about 8 miles inshore of the outer part of Lorna Shoal and are surrounded by foul ground.

**Fish Reef** (12° 26'S., 130° 26'E.), a coral reef which dries 2.1m, lies about 3 miles NE of Jones Bank and is marked on its W end by a light exhibited from a concrete tower.

Loee Patches, with a least depth of 4.9m, lies 23 miles WSW of Charles Point.

**Bynoe Harbor** (12° 39'S., 130° 32'E.) and Port Patterson, two inlets on the W side of Cox Peninsula, are generally only used by small craft and fishing vessels with local knowledge of the area. They are both entered at the N from a position about 7 miles W of Charles Point by either of two channels, which are divided at their entrance by Middle Reef (12° 28'S., 130° 31'E.), a coral patch which dries 6.1m. Thrings Channel, to the E, has a limiting depth of 3.3m, but West Channel, entered between Middle Reef and Fish Reef to the NW, carries a least depth of 7.6m.

The best time to enter is at LW when the reefs are visible and the channel can generally be seen; at HW, discoloration usually obscures even the shallowest patches and makes navigation difficult. There is a patch of bright yellow sand on the S end of Middle Reef which forms a good mark.

**2.50 Port Patterson** (12° 37'S., 130° 28'E.), with depths of 5.5 to 11m in its entrance, is divided by a drying sand bar through its center. An extensive reef, on which are located Gross Islets, Bare Sand Islets, and Quail Islet, is located on the W side of the port. The latter islet, which is located about 18 miles SW of Charles Point, is 15m high and is the outermost on the above reef. Gross Islets are low and covered with mangroves.

Bynoe Harbor, separated from Port Patterson by Indian Island, can be entered by Thrings Channel or West Channel, although the latter is preferred. The harbor is entered between West Point, the N extremity of Indian Island, and East Point, about 2.5 miles E, in a depth of about 19m, and is deep throughout the fairway, except for a 7.6m patch E of the S end of Indian Island. Numerous shoals fringe the edge of the channel and local knowledge is recommended.

**Native Point** (12° 43'N., 130° 21'E.), located 25 miles SW of Charles Point, is fringed with a drying reef and faced with red cliffs, about 10m high, which extend about 5 miles to the S. The head of Fog Bay, entered between Native Point and Point Jenny, 15 miles SW, is low with dense mangroves and tidal swamps fronted by drying sandflats extending up to 3 miles offshore.

**Point Blaze** (12° 56'S., 130° 08'E.), situated 3.5 miles SW of Point Jenny, is fringed by drying reef which extends along its shores for about 3 miles to the NE and S. Blaze Reef, which dries 0.6m, lies 2.5 miles NNW of Point Jenny, and Bowra Shoals, with a depth of 3m over them, lie 1.5 miles N of the reef. Shoal water, with depths of 5.8 to 7.9m over it, extends about 4.5 miles NW of Bowra Shoals, and caution is required on entering Fog Bay.

**Anchorage.**—Fog Bay affords reasonable shelter during the Southeast Monsoon and has good holding ground of sand and mud. Vessels can anchor as convenient, but the bay should only be entered from the NW to avoid the dangers which extend up to 8 miles NNW of Point Jenny.

**2.51** The coast between Point Blaze and Channel Point, 14 miles S, is low and considerably wooded. Foul ground extends up to 2 miles offshore here and the area should be approached with caution.

The Peron Islands, lying up to 5.5 miles W of **Channel Point** (13° 10'S., 130° 07'E.), are two, low sandy islands surrounded by drying reef and sand flats, some of which uncover to a height of 6.1m. The NW and largest of the islands has a grassy peak nearly 30m high on its N end; the rest of the islands are fringed with mangroves. There is a landing place for boats, available at any stage of the tide, on the SW shore of the S island. Shoal water extends up to 3.5 miles N and W of the N island, and the two islands are connected by drying reef.

**Anson Bay** (13° 20'S., 130° 03'E.), entered between Channel Point and Cape Ford, about 21 miles SW, has low, mangrove-covered shores along its NE side from the former point to the mouth of the Daly River, at its head. Red Cliff rises 17.5 miles S of Channel Point to a height of 15m, with the land behind it about 37m high.

**Anchorage.**—During the Southeast Monsoon, there is good anchorage, for vessels with local knowledge, about 5 miles NNW of Red Cliff, in a depth of 9.1m, mud.

There also appears to be anchorage available during good weather, in depths of 9 to 11m, about 2 miles S of the S extremity of South Peron Island.

**Caution.**—Bateman Shoal, with a least depth of 3.3m, lies on the N side of the approach to Anson Baylies, about 5.5 miles WSW of the SW extremity of North Peron Island; a shoal patch, with a depth of about 5.5m, lies about 3 miles to the N of this shoal. Other shoals, with depths of 3.6m and 3m, lie 2.25 miles N and 1.75 miles WNW of Cape Ford.

Wade Rock, with a depth of 0.6m, lies on the 5.5m curve about 2 miles NW of Red Cliff. Pelican Rock, awash at LW, and the position of which is approximate, lies about 3 miles WSW of the same cliff.

A shoal flat, which dries up to 0.9m, extends up to 5 miles off the entrance to Daly River; it has been reported to be shoaling extensively and caution is required.

**Daly River** (13° 19'S., 130° 17'E.) has been reported available at HW to vessels with drafts of 1.8 to 2.4m and possessing local knowledge. The bar at the entrance has been reported to be shoaling and lesser depths than charted may exist. During the wet season the river becomes a torrent and is not navigable.

**2.52 Cape Ford** (13° 26'S., 129° 52'E.) is a low, narrow promontory from which a reef extends about 1 mile N. The coast to Cape Scott, about 5.5 miles SW, has a barren appearance, consisting of high bare sandhills fronted by reefs and foul ground. Cape Scott is a low, sandy spit terminating in a conspicuous rounded clump of mangroves; a rocky ledge extends 2 miles N from the cape and a shoal, with a depth of 0.9m, is charted about 1 mile farther NE; another ledge extends about 2 miles SW from the cape.

About 6 miles S of Cape Scott, the coast becomes higher and is thickly wooded to the edge of reddish cliffs extending to Dooley Point, about 7 miles farther S. This coast is fronted by shoal water to a distance of about 1.5 miles; a 1.8m patch lies about 5 miles NW of Dooley Point.

**Cape Dombey** (13° 54'S., 129° 42'E.) is located 24 miles S of Cape Scott and is fringed by reefs to the N and SE. The Barthelmy Hills rise about 7 miles E of the cape and attain a maximum elevation of 103m. A reef, about 200m in diameter and which dries 1.8m, lies about 3.5 miles NNW of Cape Dombey, and a rocky patch, with a depth of 5.5m, lies about 1.5 miles SW of the reef.

**Hyland Bay** (13° 58'S., 129° 39'E.), entered between Cape Dombey and Tree Point about 10 miles SW, is shoal, but there are depths of 5.5 to 7.3m midway between the entrance points. White Cliff Point, with a line of cliffs extending about 2 miles to its SW, lies at the head of the bay; the shores along the rest of the bay are low. Reefs and foul ground, some of which dry up to 3.7m, lie up to 2.5 miles NW of Tree Point.

**Caution.**—Banks Shoal, with a least depth of 1.8m, lies centered about 7 miles NNW of **Tree Point** (14° 01'S., 129° 36'E.); depths of 3.7 to 5.5m extend up to 3 miles to the N and S.

A depth of 1.8m lies about 11.5 miles N of Tree Point and several patches, with depths of 8.5 to 11m, lie up to 4 miles S. This area has not been closely examined and additional dangers may exist.

**2.53 Port Keats** (14° 04'S., 129° 33'E.), entered between Tree Point and the NE extremity of Dorchester Island, extends approximately 8 miles S, where it divides into two arms, the E of which leads to a mission station at the foot of Mount Goodwin, 92m high. Although the entrance to this inlet has depths of 5.5 to 9.1m, the channel within is shoal and narrowed by reefs, and local knowledge is required.

Vessels may anchor about 3 miles W of Tree Point, in a depth of 10m. Small vessels may anchor about 3 miles SW of the point, in depths of 4 to 8.8m.

**Cape Hay** (14° 03'S., 129° 29'E.), the NW extremity of Dorchester Island, is low and surrounded by foul ground. Shoal water, with a least depth of 1.5m, extends up to 3 miles NNW of the cape, but the waters up to 8 miles SW are unsurveyed. Howland Shoals, which dry 0.6m, lie from 3.5 to 7.5 miles NNW of Cape Hay. Drying rocks lie up to 4 miles W of the N extremity of Howland Shoals; depths of less than 11m extend up to 6.5 miles W and 8.5 miles NW of Howland Shoals.

**Caution.**—Emu Reefs, the exact extent of which are unknown and which dry up to 4.6m, lie centered about 11.5 miles N of Cape Hay; strong tide rips are formed between Emu Reef and the N end of Howland Shoals.

A rocky patch, which dries up to 1.2m and on which the sea breaks heavily, lies 18.5 miles NNW of Cape Hay. This patch is steep-to, especially on its E and W sides, where depths of 18 to 22m lie within 1 mile of it.

## Joseph Bonaparte Gulf

**2.54** Joseph Bonaparte Gulf consists of a large coastal bight formed between Port Darwin and Cape Londonderry, about 240 miles SW. At its head is the Victoria River to the E, and Cambridge Gulf to the W, with the latter leading to Hare Channel and the port of Wyndham. Cambridge Gulf provides good anchorage to medium sized vessels in most weather, and Wyndham can accommodate ocean-going vessels of moderate size.

**Aspect.**—Joseph Bonaparte Gulf is entered between Cape Hay and Cape Rulhieres (13° 56'S., 127° 22'E.), about 125 miles W. The head of the gulf is divided into the estuary of the Victoria River on the E side, and Cambridge Gulf on the W side, but with the exception of the latter and its approaches, has not been thoroughly surveyed.

The coast between Cape Hay and Pierce Point, 24 miles SSW, is low and mostly wooded, with sandhills and cliffs in several places. Flat rocky shelves extend seaward from the cliffs in some places; elsewhere the foreshore is sand or mangrove clumps.

A bank, with less than 10m, lies 6 to 7 miles offshore extending up to 12 miles S from Howland Shoals. It has not been completely surveyed and undiscovered dangers may exist off this stretch of coast. Vessels approaching Cambridge Gulf are recommended to remain in depths of 37m or more until within about 15 miles of the outer entrance, and not to proceed into any other part of Joseph Bonaparte Gulf without local knowledge.

In 1980, safe anchorage was found, in 15m, about 2.5 miles SW of Cape Hay, but caution is necessary in approaching this anchorage because of the imperfectly surveyed bank mentioned above.

**Caution.**—The waters of the S and SE parts of Joseph Bonaparte Gulf are almost turbid, as sediment is held in suspension by the strong tidal currents and dangers may not be apparent. In some instances overfalls and eddies indicate deep holes and trenches as well as shoals.

**Pearce Point** (14° 26'S., 129° 21'E.), the N entrance point of the estuary of the Fitzmaurice River and the Victoria River, is a rocky promontory with wooded sandhills, 7m high, behind it. A level wooded cliff, 26m high, is located 0.5 mile E at the head of Treachery Bay. Providence Hill, 72m high, rises 4.5 miles E of the point, with increasing elevations within.

Rocky shelves extend about 300m offshore from Pearce Point and there is a 3.2m shoal 1.5 miles SW of it.

Shoals, with depths of 14.8m and 12.2m, lie 9 miles NNW and 5.5 miles WNW, respectively, of Pearce Point.

The area W of Pearce Point consists of broken ground. In this vicinity overfalls dangerous to small craft have been observed up to 6 miles offshore. A shoal, with a least depth of 11m, lies 9 miles W of the point.

**2.55 Mermaid Bank** (14° 30'S., 129° 20'E.), located 4 miles SSW of Pearce Point, has a depth of 3.3m at its N end, 4.3m at its S end, and dries 0.3m in its central part.

Detached shoals of 8.2m and 6.7m lie about 7 miles SE of the shallowest part of Mermaid Bank. These shoals signal the start of finger-like drying banks, lying in a NW-SE direction, which extend seaward from the mouths of the Fitzmaurice River and the Victoria River. An 11m shoal lies 5 miles W of the S end of Mermaid Bank.

There are shoals between Mermaid Bank and Treachery Bay, the positions and depths of which can best be seen on the chart.

**New Moon Inlet** (14° 36'S., 129° 37'E.), entered 15 miles SE of Pearce Point, extends E for about 14 miles, where it divides into two branches at the foot of Table Hill, a 195m high, flat-topped peak. The inlet is shoal and filled with sand banks which just dry. The surrounding land is very low and somewhat swampy.

**Keys Inlet** (14° 46'S., 129° 37'E.), entered about 17 miles SSE of Pearce Point, forms the approach to the Fitzmaurice River, but is filled with shoals and sand banks requiring local knowledge to navigate. The surrounding land is very low and sometimes covers at high water springs; there are no leading marks or aids to navigation, but the channel to the river is said to carry a depth of 3.7m for about 30 miles from the coast.

**Quoin Island** (14° 51'S., 129° 33'E.) is low and covers at highest spring tides. It consists of large areas of dried mud flats and mangrove swamps. There is a distinctive clump of trees at its N end. A bank, which dries, lies 6 miles WNW of the N end of Quoin Island. Clump Island lies about 1 mile NE of the island's E side.

**2.56 Victoria River** (15° 00'S., 129° 33'E.), believed to be the longest river in northern Australia, rises about 300 miles inland, but has only been traced for about 150 miles. It is entered via Queens Channel from a position about 16 miles S of Pearce Point and can accommodate small vessels, possessing local knowledge, with drafts to about 3.7m. Above Blunder Bay (15° 12'S., 129° 44'E.), just within Entrance Island, the river becomes encumbered with shoals and sandbars which alter annually and can only be navigated by light draft vessels with extensive knowledge of the channels.

**Queens Channel** (14° 41'S., 129° 21'E.), the inlet to Victoria River, is entered between Quoin Island and the sand banks E of Turtle Point, 17 miles W, and carries a depth of about 5.8m to within 7 miles of Entrance Island. The best time to enter is at

LW, when the sandspit and banks NW and SW of Quoin Island can be seen, but great caution is necessary as there are depths of only 1.8 to 3.3m off the entrance to the channel.

In 1981, it was recommended that the best approach through Queens Channel was with River Peak bearing 137°. This leads to a position 2 miles W of Quoin Island, where the extensive sand banks, described above, will be encountered.

Tidal currents are strong, reaching 7 knots at springs, and the river floods heavily during the rainy season.

**Caution.**—Navigation of the Victoria River and Queens Channel is considered difficult and hazardous. There are no aids to navigation, the tidal currents are strong even in the approaches, and the exact position of the outer bars and shoals is doubtful. If it necessary to enter, vessels must exercise extreme caution and have enough power to overcome the cross currents in the channels.

**2.57 Turtle Point** (14° 51'S., 129° 14'E.) consists of low, scattered sandhills fronted by mangrove flats. Shoals and foul ground, with drying patches, extend 26 miles NW and nearly 12 miles NE of the point, the latter forming the SW edge of Queens Channel. Much of the shore S and SE of Turtle Point is intersected by creeks and small inlets, and is inundated during high water springs and the wet season.

A large shoal inlet, mostly unexamined, extends about 22 miles S from the W side of Turtle Point. The entrance, which is about 9 miles across, appears to be fronted by rocks and should not be approached without extensive local knowledge.

**Pelican Islet** (14° 46'S., 128° 47'E.), 6m high, lies on the outer edge of a drying flat about 5 miles offshore and 26 miles W of Turtle Point. About 3 miles N of the islet there are charted depths of 11 to 12.8m, but the area has not been completely examined and several shallower depths, including a reef which dries 4.3m, lie up to 20 miles offshore in this vicinity.

**Rocky Islet** (14° 44'S., 128° 38'E.), 30m high, lies close off the coast flats about 9 miles WNW of Pelican Islet. Patches, with depths of less than 11m, lie up to 12 miles N of the islet and shoal water extends W and NW to Medusa Banks.

The coast W of Rocky Islet is more hilly than that to the E and gives a distinctive appearance to the shoreline that is useful in making the entrance to Cambridge Gulf.

## Cambridge Gulf

**2.58 Cambridge Gulf** (14° 55'S., 128° 13'E.) is located in the SW part of Joseph Bonaparte Gulf and entered between Cape Domett and Cape Dussejour, about 10 miles WNW. It is divided in its entrance into two channels by **Lacrosse Island** (14° 45'S., 128° 19'E.), which lies nearly midway between the capes. From Lacrosse Island, the gulf extends 45 miles in a SSW direction to Port Wyndham, and then in a WSW direction for 5 miles, where it contracts to a width of only 0.25 mile through The Gut, a rocky gorge 2 miles in length, which opens into a shallow lagoon.

The N limit of the port is a line joining Cape Dussejour and the summit of the highest hill on Lacrosse Island.

**Depths—Limitations.**—The preferred approach is W of Lacrosse Island, but the fairway through the greater part of the gulf is deep. Hare Channel, about 33 miles above Lacrosse Island, has a least depth of 6.4m and is the controlling depth to

Wyndham; tides rise up to 7.3m, which allow deep-draft vessels to be taken in.

**Currents.**—Tidal currents in the vicinity of Lacrosse Island reach a maximum of 4 knots at springs. Within the narrow reaches of the channel, however, they can attain a maximum rate of 6 knots and large vessels may have to adjust their speed to negotiate the fairway near high water slack.

**Pilotage.**—Pilotage is compulsory for merchant vessels of more than 150 tons gross register whose masters do not hold a Pilotage Exemption Certificate. A master requiring a pilot should notify the Harbor and Light Department at Fremantle of the ETA 10 days in advance and the Harbormaster at Wyndham 48 hours and 24 hours in advance; the 48-hour message should also include the vessel's maximum draft.

The Sea Pilot Station is 4.7 miles S of Lacrosse Island Light and the Wyndham Pilot Station is 6 miles NE of Black Cliff Point; the master should state at which point the pilot should embark. It is preferable that vessels should arrive at the pilot boarding place at dawn, as entrance is only made in daylight. There is a port radio station at Wyndham and the pilot launch is equipped with VHF; the calling frequency is VHF channel 16, while the working frequencies are VHF channel 6 or VHF channel 12.

**Regulations.**—Vessels should maintain a listening watch on VHF channel 16 at least 2 hours prior to boarding the pilot.

**2.59 Cape Domett** (14° 49'S., 128° 23'E.) is fronted by low cliffs on its NW side and fringed by reefs terminating with its SW extremity at Shark Rock, which dries 6.4m. Shakespeare Hill, with a flat-topped rocky summit, 131m high, rises 3 miles E of the cape and from a distance appears as an island. Cone Hill, 72m high, rises about 0.75 mile E of the cape and when aligned with the former hill, bearing 085.5°, forms a good mark from the pilotage area.

**Medusa Banks** (14° 30'S., 128° 19'E.), with depths of less than 5.5m, extends 20 miles NNW from the coast between Rocky Islet and Cape Domett. These banks form the E side of the approach to Cambridge Gulf and have isolated patches with depths of only 0.9m, some near the outer extremity.

**Lacrosse Island** (14° 54'S., 128° 19'E.) lies with White Stone Point, its SE extremity, about 4 miles NW of Cape Domett; the summit of the island, 141m high, rises near its SW end and forms a good mark in the approach. The N coast of the island consists of rugged sandstone cliffs, but the SE extremity is composed of a low spit formed by boulders; the S side is fronted by extensive mud banks.

Tucker Bank, awash at low water springs, is an oblong sandy patch extending from 0.5 to 1.75 miles S of White Stone Point.

West Bluff, the NW extremity of Lacrosse Island, rises to a height of 100m close within, and Bream Ledge, a rocky reef, steep to on its W side, extends about 0.35 mile to the NNW. Shoal water extends 2.5 miles E of this ledge.

Lacrosse Island Light is shown from a white metal hut situated on a hill 0.25 mile ESE of West Bluff; a racon transmits from the light. In 1985, a shoal, with a depth of 9m, was reported to lie 8.6 miles NNE of Lacrosse Island Light.

**Anchorage.**—Anchorage can be obtained in the lee of Lacrosse Island on either side.

Vessels waiting for the pilot can take anchorage, in depths of 16 to 18m, sand and shell, about 4 miles S of Lacrosse Island, on the line of Cone Hill and Shakespeare Hill.

**Directions.**—Vessels should steer for the summit of Lacrosse Island on a heading of 170°. When 4 miles from the island, alter course to pass 1 mile off West Bluff, the NW extremity of Lacrosse Island. When Lacrosse Island Light bears 040°, alter course to 145° for the pilot boarding position, located about 3.5 miles S of Lacrosse Island, with Cone Hill and Shakespeare Hill in range to the E. From the pilot boarding position, vessels steer 225° for Black Cliff Point, which lies about 1.25 miles W of Nicholls Point, the NW extremity of Adolphus Island. Directions S of this point are continued in [paragraph 2.62](#).

**2.60 Cape Dussejour** (14° 45'S., 128° 13'E.), the W entrance point of Cambridge Gulf, is 43m high, with a low neck of land within that causes the cape to appear as an island from N. Three hills, from 122 to 161m high, rise between 2.5 and 4 miles WNW of the cape.

King Shoals, which form the W side of the approach to Cambridge Gulf, are three narrow sandy ridges nearly parallel to each other and with drying patches and shoals of less than 1.8m scattered across their limits. They extend generally 15 miles NNW of Cape Dussejour, with narrow channels within, which should not be attempted without extensive local knowledge.

**Fathom Rock** (14° 43'S., 128° 14'E.), 2m high, lies 2.5 miles NNE of Cape Dussejour, and Entrance Shoal, with a least depth of 4.9m, lies nearly 1 mile ENE of this rock. In 1966, an 8.2m shoal was reported 1.75 miles NNW of Fathom Rock. Lory Rock, awash at low water springs, lies on a spit with depths of less than 5.5m, which extends 0.25 mile E from Cape Dussejour.

**2.61 Vancouver Point** (14° 50'S., 128° 12'E.), 5 miles SSW of Cape Dussejour, terminates in a bluff from which cliff extends 1.5 miles along the shore to the NW. Two peaks, each about 100m high, are located about 1 mile NW of the point and can easily be identified from the NE. Myrmidon Ledge, a drying reef, extends 0.4 mile SE of Vancouver Point and a 4.6m patch lies about 0.75 mile NE of the point.

**Cowan Patches** (14° 50'S., 128° 16'E.), with a least depth of 3.4m and with shoal depths extending 2.5 miles SW, lies centered about 4.5 miles E of Vancouver Point. A depth of 9.6m lies midway between Cowan Patches and Lacrosse Island.

**Guthrie Banks** (14° 55'S., 128° 10'E.), which dry up to 3m, extend approximately 8 miles S of Vancouver Point and up to 4 miles offshore. These banks consist mostly of sand and nearly fill the W part of the gulf S of the above point; the NE extremity of Guthrie Banks lies only 1.25 miles W of the SW limit of Cowan Patches.

**East Banks** (14° 56'S., 128° 16'E.), which dry up to 3.6m, lie on the E side of the fairway, about 7 miles SE of Vancouver Point. The shore within these banks and between them and Cape Domett consists of a series of poorly-defined inlets formed by low, mangrove islands and should not be approached without local knowledge.

Adolphus Island, a hilly island with a maximum elevation of 234m, lies with **Nicholls Point** (15° 03'S., 128° 07'E.), its NW extremity, about 20 miles SSW of Lacrosse Island. The shores of the island are low and mangrove-covered, with the exception of the above point, and are about 24m high, with Webster Bluff and Steep Head, two cliffy projections, on the W side.

Australind Bank extends about 4 miles NE of Nicholls Point and consists of drying sand banks. Small vessels can take anchorage off the W side of this bank, about 2.5 miles NNE of Nicholls Point, where they will be clear of the main tidal currents, in depths of 9.1 to 11m.

**2.62 Black Cliff Point** (15° 02'S., 128° 06'E.), conspicuous from NE, lies 1.25 miles W of Nicholls Point and is a rocky bluff surmounted by a grassy slope 19m high. Pilots steer for Black Cliff Point, bearing 225°, from the boarding ground S of Lacrosse Island; a 144m high hill lies about 1 mile SW of the point and forms a range on this bearing; caution is necessary as there are numerous other hills in this area.

**Directions.**—The channel S of Nicholls Point is difficult and intricate and should not be attempted by vessels without a pilot. The tidal currents run up to 6 knots at springs and cross the track in places. The fairway has a least depth of 6.4m and a minimum width of about 0.2 mile; it should not be run by large vessels below the level of half tide.

Vessels approaching Black Cliff Point on a course of 225° alter their heading for Agnew Point when it comes in line, bearing 203°, with Flat Top Hill, 266m high, about 5 miles SSW. When Saville Islet, 1 mile N of **Dundas Point** (15° 10'S., 128° 06'E.), the N extremity of Fairfax Island, bears 186°, steer for it to maintain a mid-channel course until off **Steep Head** (16° 18'S., 123° 31'E.), the W extremity of Adolphus Island.

From Steep Head, vessels steer to pass E of Saville Islet and then in mid-channel between Fairfax Island and Kent Islet, about 0.5 mile NE. The channel then leads E of Fairfax Island and E of Russell Island, about 2 miles S, to a position about 0.35 mile E of **Pender Point** (15° 17'S., 128° 06'E.). A shoal depth of 4.1m was reported (1990) to lie about 0.4 mile S of the S end of Fairfax Island.

**2.63 Hare Channel** (15° 19'S., 128° 04'E.) leads SW from Pender Point between the mainland and Middle Ground, a bank of sand marked by beacons, which nearly blocks Main Channel to the E. At Laffan Point, 2.5 miles SW of Pender Point, the channel turns SSE for Wyndham. The least depth in Hare Channel, in the approach to Wyndham, is 6.4m..

Range beacons mark both reaches of Hare Channel. The first set, on Laffan Point, consists of two range marks and a channel beacon, all in line bearing 228°; the second set, N of Laffan Point, consists of two white columns in line bearing 336.75°, and also two white columns, on the E shore N of Wyndham, in line bearing 156.75°. On approaching the S part of the second range, vessels must veer to the E and pass between two beacons to avoid the tongue extending NNE from Myrmidon Bank. Vessels may then shape a course for the wharf, giving Stony Point a wide berth.

Anchorage can be taken SW of Steep Head, in mid-channel depths of 22 to 31m, by ocean-going vessels waiting for the tide or slack water. Tidal currents run about 3 knots at springs in this area.

## Wyndham (15° 27'S., 128° 06'E.)

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**2.64** Wyndham is the principal port in the Kimberly District for the export of cattle and frozen meat. A large meat plant has been erected in the town and is well-equipped with engineering and other facilities. The wharf is specially equipped with facilities for the loading of frozen cargoes and rail facilities lead directly from the meat plant to the berths.

**Winds—Weather.**—From April to September, the Southeast Monsoon prevails and brings a considerable amount of haze to the area. Fresh SE winds blow in the outer part of Cambridge Gulf at this time, but the port area is protected by the hills to the E.

In September, the weather is hot and misty, and continues so until the rains of the Northwest Monsoon set in, usually in October or November. Flies and mosquitoes are prevalent.

**Tides—Currents.**—At Wyndham, mean spring tides rise 7.4m, and mean neaps rise 5.6m. At Lacrosse Island, the tidal rise is about 0.8m less.

The flood sets on to both ends of the wharf at a slight angle with a rate of 2.5 to 3 knots. The ebb currents set off the wharf at a slight angle with a rate of 3 to 4 knots.

Currents in the approach to Wyndham are included with the descriptions under Cambridge Gulf in [paragraph 2.58](#).

**Depths—Limitations.**—The least depth in Hare Channel, in the approach to Wyndham, is 6.4m..

Wyndham Wharf (Meat Works Wharf) is 482m long. There are two berths, with an alongside depth of 9.1m; the bottom is composed of mud and silt and is subject to silting. The wharf is of steel structure and flush-decked, allowing road and rail traffic.

An unmarked wreck, with a least depth of 3.6m, lies off the NW end of the wharf.

A shoal, with a depth of 3.3m, lies about 1 mile S of the SW end of the Meat Works Wharf.

Vessels up to 190m in length, with a maximum allowable draft of 8.8m, can be taken to Wyndham on most high waters; vessels up to 26,000 tons, with a length of 210m, have been accommodated.

Vessels are taken in and out during daylight hours only.

**Pilotage.**—Pilotage is compulsory. Pilots board 4.7 miles S of Lacrosse Island Light. See Cambridge Gulf, [paragraph 2.58](#), for additional information.

**Anchorage.**—Anchorage can be taken about 0.25 mile WSW of Wyndham Wharf, in a depth of 9.1m, mud.

Vessels subject to quarantine must anchor on a line S of Wyndham Wharf and N of Anthon Landing, about 0.5 mile S. Caution is necessary to avoid the 3.3m patch about 0.5 mile S of the latter wharf.

## Joseph Bonaparte Gulf (continued)

**2.65** The coast from **Cape Dussejour** (14° 45'S., 128° 13'E.) trends NW for 70 miles to Cape Rulhieres and is mostly rocky with a few sandy beaches. It is open, exposed, and fronted by rocks, which in places extend about 2 miles offshore. Large areas of sandwaves exist between King Shoals and Cape Rulhieres, extending to a distance of about 12 miles offshore.

The largest area of these sandwaves lies to seaward of Rocky Islet and in 1975 carried a least depth of 8.8m.

Deep-draft vessels should exercise caution within this area and are advised to remain to seaward of the 50m depth contour when passing between Medusa Banks and Lesueur Islet.

The sandwave areas may be clearly identified by day when the tidal current transports bottom sediment and causes brown discoloration.

**Obstruction Hill** (14° 40'S., 128° 08'E.), 184m high, rises close to the coast about 7.5 miles NW of Cape Dussejour and is one of the highest hills in this area. Double Hammock, consisting of two peaks 140 and 138m high, lies 2 miles SE of Obstruction Hill and Hunch Hill, about 175m high, lies about 3.5 miles SSW of Double Hammock.

**Caution.**—Vessels are advised against basing navigation wholly upon these hills, as there are numerous peaks in this area and identification may be difficult under some conditions.

**2.66 Thurburn Bluff** (14° 35'S., 128° 03'E.), about 30m high, rises 7 miles NW of Obstruction Hill; the coast is fringed by cliffs for 3 miles SE and 2 miles NW. About 3.5 miles NW of Thurburn Bluff, there is a bay 2.25 miles wide, which dries up to 1.25 miles from its head. Above-water and submerged rocks extend up to 0.2 mile off the SE entrance point.

**Buckle Head** (14° 26'S., 127° 53'E.), about 13.5 miles NW of Thurburn Bluff, rises to a height of 76m, with a shoal bay on each side. Reveley Island, 63m high, lies close offshore, 5 miles NW of Buckle Head. Two barren islets, from 9 to 23m high, lie about 1.75 miles E of the island; they are both surrounded by a reef.

**Mount Casuarina** (14° 24'S., 127° 42'E.), 210m high and flat-topped, rises 7 miles W of Reveley Island. There are some conspicuous sandhills, 92m high near Cape St. Lambert, about 4 miles NW of the same island.

**Cape Rulhieres** (13° 56'S., 127° 22'E.), the W entrance point of Joseph Bonaparte Gulf, has a white cliffy appearance and several projecting points from which rocky ledges extend up to 1.5 miles. The coast SE of the cape, for about 24 miles, has not been closely examined, but several rocky islets and dangers are known to exist along this stretch.

There is a rocky bay S of Cape Bernier, about 9 miles SE of Cape Rulhieres, which affords shelter to boats, but there are several dangerous patches within it.

## Cape Rulhieres to Cape Londonderry

**2.67 Lesueur Islet** (13° 50'S., 127° 16'E.), about 6 miles NW of Cape Rulhieres, is low, sandy, and surrounded by coral reefs which extends up to 1.5 miles from the NE and W sides. There appears to be a passage between the island and the mainland, but in 1983, the islet was reported to lie 1.4 miles NW of its charted position and caution is advised. A light is shown from a metal framework tower on the NW extremity of the islet.

The coast trends W from Cape Rulhieres for about 10 miles to a high islet lying close offshore. The shore is much indented with shoal bays, which have not been closely examined, and reefs, which dry in patches, extend about 3 miles NE of the high islet. A sandy bay lies SW of Cape Rulhieres and the King George River empties at its head; this bay has been visited by small craft.

**Caution.**—Depths of 5.8m and 9.4m were reported (1983) to lie 1.5 miles SSW and 1.25 miles W, respectively, of Cape Rulhieres.

The coast from the above high islet extends about 16 miles NW to Cape Londonderry and is much indented by small bays and coves, the entrance points of which are fringed by reefs. One of these bays, about 8 miles SE of Cape Londonderry, forms a boat haven with sandy shores. The headland 6.5 miles SE of the cape is marked by red cliffs.